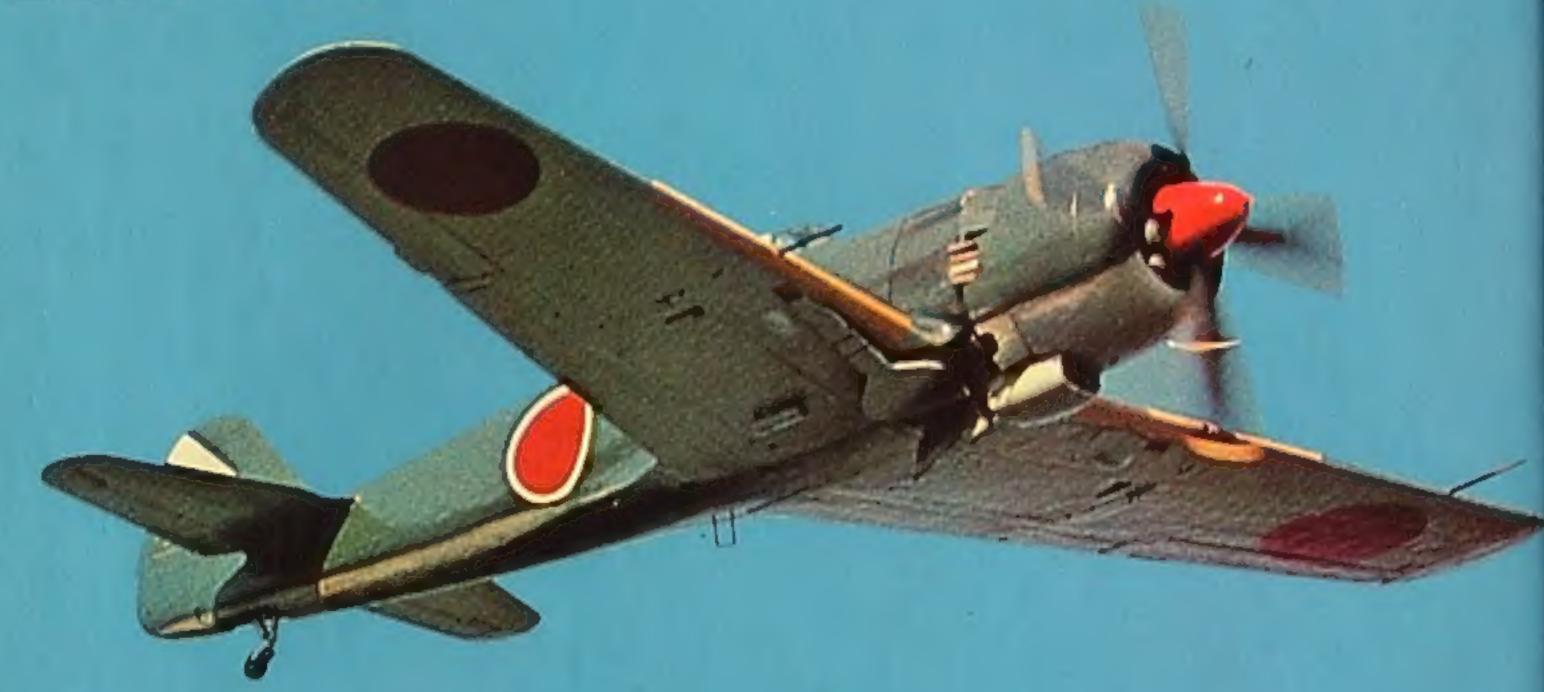
JAPARESE AFRAFI OF WORLD WAR II



WITH COLOUR PHOTOGRAPHS
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大東亞戰爭二周年

Basil Collier

# JAPANESE AIRCRAFT OF WORLD WITH COLOUR PHOTOGRAPHS

Before the Japanese went to war with the Western powers, they were widely believed to have built no nava or military aircraft comparable to the best European and American bombers and fighters. The crippling of the United States Pacific fleet at Pearl Harbor, followed by the sinking of the Prince of Wales and Repulse, showed that in fact they possessed carrier-borne and land-based torpedo bombers and dive bombers with exceptional range and striking power. They had an impressive escort fighter and were well equipped with seaplanes and maritime reconnaissance aircraft. It wou be hard to over-estimate the contribution made by the Japanese air forces during the first six months of the war. Air power, boldly and imaginatively used, enabled the Japanese to dominate the sea and air approaches t their objectives and thus to maintain and supply their extraordinary forces at a trifling cost in transport and warships sunk.

Basil Collier describes the whole impact of Japanese air power in World War II and traces the course of the vin the air in the Far East and the Pacific. He provides a comprehensive reference section covering all the main types of Japanese naval and military aircraft throughouthe war, giving the history of each type of aircraft with their vital statistics. He also provides a description of the designations of the Japanese naval and military aircraft and an account of the lase aircraft industry durin World War II.

The book is superbly illustrated with magnificent photographs in both colour and black and white.

JAPANESE AIRCRAFT OF WORLD WITH COLOUR PHOTOGRAPHS

# Basil Collier





# JAPANESE AIRCRAFT OF WORLD WITH COLOUR PHOTOGRAPHS

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# 1 Japanese Air Power



When Japan opened hostilities against the Western Powers in December 1941, she was in no position to sustain a long war or to gain an nutright victory over her opponents. Her productive capacity was far smaller than theirs. She had never been rich in raw materials. Her oil reserves, after reaching a peak at the end of the 1930s, had begun to fall off as a result of increased consumption and restrictions imposed by her suppliers. Her merchant fleet barely sufficed for peacetime needs. Her army was welltrained and well equipped, but forty of its fifty-one divisions were committed to a wearisome struggle in China and defensive tasks at home and in Korea and Manchuria. She had ten battleships and six fleet carriers in commission, but on paper Britain and the United States were still the strongest naval powers. Her statesmen, when they decided in November that war was preferable to acquiescence in American proposals, did not aim at annihilating her enemies or bringing them to their knees by a long-drawn process of attrition. They gambled on the hope that spectacular achievements by relatively small forces with strong air support would soon put them in a position to negotiate a settlement on favourable terms.

For a time, the gamble seemed to be succeeding beyond their wildest expectations. Their troops entered Manila within three weeks of the outbreak of war, Singapore within ten weeks. Java and Sumatra were theirs within three months. By the beginning of the monsoon season in South-East Asia, they had driven the British from Burma.

Such rapid progress would scarcely have been possible if their opponents had not contributed generously to their own undoing. By precipitating a diplomatic crisis a good three months before the British and American naval and military authorities expected to complete their preparations for the defence of Malaya and the Philippines, the American Secretary of State, Cordell Hull, ensured that the war would begin at a favourable moment for the enemy. In Oahu and Luzon the Americans allowed themselves to be caught with most of their aircraft on the ground and undispersed, although they had had plenty of time to study the lessons of the war in Europe. On the strength of rumours and unconfirmed reports, the British abandoned the position at which they had elected to stand in northern Malaya without waiting for the main body of the Japanese 5th Division to attack it.

Even so, the Japanese could not have captured Singapore a month ahead of schedule if they had

not made good use of their opportunities. According to a Japanese officer closely concerned with the planning of the campaign in Malaya, the swiftness of their advance along the trunk road from Siam and northern Malaya to Johore was attributable not to the special aptitude for jungle warfare imputed to them by Allied commentators, but to 'expensive British roads and cheap Japanese bicycles'. But they also owed something to the weakness of the opposition. The defenders of Malaya were handicapped not only by the mistakes they made but also by the meagreness of their resources. On the outbreak of war they had roughly two-thirds of the troops considered necessary in the absence of the strong fleet due to assemble at Singapore by the following March or April. They started with 158 aircraft (some of them obsolete) towards an estimated minimum requirement of 336 and a target figure of 582. About half the troops in northern Malaya on the outbreak of war were directly or indirectly committed to the defence of airfields which had to be denied to the enemy, although many of them served no useful purpose because there were no squadrons there. The one division available for the defence of the trunk road had been standing by for forty-eight hours for an advance into Siam when it was switched to its alternative position at Jitra because the Commander-in-Chief of the British land and air forces in the Far East was understandably reluctant to violate Siamese neutrality except in circumstances which arose too late for the advance to be made. Once the Jitra position was abandoned, a lavish allocation of mechanicallypropelled vehicles became more of a burden than a benefit to troops retreating along a single route. The Japanese travelled light. They were willing to incur the odium of disembarking troops in Stamese territory and seizing airfields throughout southern Siam. Above all, they had plenty of air support.

The importance of the contribution made by their air forces to the successes gained by the Japanese during the first six months of the war would be hard to overestimate. Air power, boldly and imaginatively used, enabled them to dominate the sea and air approaches to their objectives, to maintain and supply their expeditionary forces at a trifling cost in transports and warships sunk. Without ample air support, eleven divisions supplemented by naval landing parties would not have been anything like equal to the task of conquering vast territories and seizing isolated outposts in an area extending

from the Indo-Burmese frontier in the west to the Gilbert Islands in the east and the Indonesian archipelago, New Guinea, and the northern Solomons in the south.

## Rennament

Before the Japanese went to war with the Western Powers, they were widely believed to have built no naval or military aircraft comparable with the best European and American bombers and fighters, aithough there was evidence to the contrary in reports from British and American observers in China. The crippling of the United States Pacific Fleet at Pearl Harbor, followed by the sinking of the Prince of Wales and the Repulse off the east coast of Malaya, showed that in fact they possessed carrier-borne and land-based torpedo-bombers and dive-bombers of exceptional range and striking-power. The A6M2 escort-fighter was equally impressive. They were also well provided with scaplanes, flying-boats, and landplanes for tactical, strategic, and maritime reconnaissance.

These aircraft were products of more than eight years of research, experiment, and practical experience. As a result of political upheavals which substantially increased the power and influence of the army and the navy, Japan began in the first half of the thirties to expand her aircraft industry and strengthen her air forces. Her ultimate aims were to make herself independent of foreign suppliers and strong enough to assert her claim to a dominant role in East Asia. In the meantime the military authorities were concerned, both before and after the outbreak of an undeclared war with Nationalist China, to support their troops on the mainland and safeguard them against attacks by Chinese, Mongolian, and Soviet forces armed and subsidised by the Western democracies and the Soviet Union.

This remained a major preoccupation until - and even after - detailed planning for war with the Western Powers began in 1941. All the first-line aircraft with which the Japanese Army Air Force was equipped on the outbreak of the war of 1941-5 were built to specifications issued in 1937 or earlier, and to standards intended to fit them for service in temperate and sub-Arctic climates. They were not particularly suitable for an offensive against the Western Powers in South-East Asia and the South-West Pacific, and in any case the military authorities could not afford to devote more than about half their

first-line aircraft to the task. The navy had, therefore, not only to deal with the American battleffeet and be ready to tackle any heavy ships the British might send to Singapore, but also to find more than half the aircraft needed to knock out the enemy's airfields and gain air superiority over beaches and roadsteads.

The nucleus of a powerful naval air striking force already existed when rearmament began. The Washington Naval Treaty laid down the principle that no aircraft carrier should displace more than 27,000 tons; but the Americans were allowed to save two unfinished battleships from the scrapyard by completing them as outsize carriers. The Japanese took advantage of a concession which allowed them to follow suit. At the cost of locking up most of their permitted carrier tonnage in two ships, they completed in 1927 and 1928 the 36,600-ton Akagi and her sister-ship the Kaga. Each carried about seventy aircraft, as compared with about twenty carried by the light fleet carrier Hosho. After exercising their right to denounce the treaty, they followed between 1937 and the autumn of 1941 with the Soryu, the Hiryu, the Shokaku, and the Zuikaku. These, too, carried about seventy aircraft apiece, although their displacements were within the treaty limit of 27,000 tons. Two more light fleet carriers, the 8,500-ton Rsujo and the 13,000-ton Zuiho, were completed in 1933 and 1940.

A wide range of Japanese-designed carrierborne fighters, torpedo-bombers and divebombers was developed during the first few years of the rearmament drive. The B5N2 torpedo-bombers and D3A1 dive-bombers which attacked the American battlefleet at Pearl Harbor on 7 December 1941 were of a later generation, but not so late that they were acquired with the Pearl Harbor operation specifically in view. The B5N2, which first flew in 1939, was virtually identical, except for its engine, with the B5N1 of 1937; the D3A1 was built to meet a specification issued in 1936. A surprise attack on Pearl Harbor was first mooted early in 1941, some seven or eight months after the Americans decided to leave their main fleet there at the conclusion of an exercise in Hawaiian waters; but rehearsals did not begin until September, and the project was not formally adopted until November.

The Pearl Harbor project was sponsored, and is said to have been initiated, by the redoubtable Isoruku Yamamoto. In common with other Japanese naval officers of his generation, Yamamoto disapproved of the Tripartite Pact

with Germany and Italy, distrusted the Russians, and would have liked Japan to remain on good terms with the Western Powers. He thought that, if she did go to war with the United States, she would probably have cause to regret her decision, but that the risks she ran would be substantially reduced if the navy could find a way of knocking out the American battleffect at an early stage.

It was also at Yamamoto's prompting that the navy developed the aircraft which sank the Prince of Wales and the Repulse, although again these aircraft were designed, tested, and put into production long before the Japanese had occasion to use them against the British. In 1933, Yamamoto persuaded the authorities that land-based as well as carrier-borne long-range bombers would be needed in a war fought over vast distances in the Far East and the Pacific. The G3MI dual-purpose land-based bomber and torpedo-bomber was built to a specification issued in 1934, went into production in 1936, and was followed in 1937 by the G3M2. A prototype of the more advanced G4M1 made its maiden flight in October 1939. Both aircraft were used against objectives in Nationalist China many months before the arrival of the Prince of Wales and the Repulse at Singapore led the Japanese naval authorities to reinforce the 22nd Air Flotilla in southern Indo-China for the express purpose of attacking British warships should diplomatic negotiations still in progress fail to avert war.

#### Design and Function

The astonishing feats performed by the Japanese naval air arm in the first few days of the war showed that it was far more powerfully equipped and better organized than the Western Powers had supposed. Its achievements gave a rather flattering impression of the fighting value of its aircraft; but its aircraft did not have to do much fighting. At Pearl Harbor the first wave of torpedo-bombers, dive-bombers, and escortfighters met scarcely any opposition, the second wave very little. Hong Kong had practically no air defences. The defenders of Luzon put up only one fighter squadron when a large formation of Japanese naval aircraft approached Manila on the first day. The Japanese Twenty-Fifth Army soon gained mastery of the air over northern Malaya by seizing airfields in Siam while the enemy's meagre striking force was preoccupied with attacks on transports and landing-craft. The Prince of Wales and the Repulse had no

air cover, although help could have been forthcoming if the British admiral had reported his position as soon as he found that hostile aircraft were shadowing him in an area within reach of British fighters.

Comparisons between rival air forces are inevitable, but can be misleading. A nation develops the aircraft it thinks it will need. From the moment when the British began to rearm in the 1930s, they were convinced that, if they had to go to war, sooner or later their centres of industry and population would become targets for German bombers. They provided themselves with an unrivalled system of air defence and built fast, highly manocuvrable, short-range fighters. The Germans, short of artillery and mindful of the lessons of the Spanish Civil War, built bombers, lighters, and reconnaissance aircraft well suited to the tactical and strategic support of armies in the field. The Americans, at one time confident that the only war into which they were likely to be drawn would be one fought for the defence of their possessions in the South-West Pacific, attached much importance to carrier-borne striking forces and long-range maritime-reconnaissance aircraft, but became keenly interested in the B-17 army bomber when their strategists foresaw that the national interest might require them to send air forces to Europe or Africa as participants in a struggle between the European democracies and the Axis Powers. The Japanese, a maritime but also a military nation, were acutely conscious of the huge distances that separated them from the vital centres of their hereditary enemies the Russians, of the implications of a war fought over vast expanses of blue water in the Pacific. In the design of nearly all their aircraft except those intended for tactical support of troops, they consciously sacrificed armour and defensive armament to range and speed.

Such differences of emphasis should put students of air power on their guard against reading too much into statistical comparisons. The Me 109E was faster than at least two-thirds of the fighters used by the British in the Battle of Britain. It was more powerfully armed than most of them. But the British won the battle. The B5N2, the D3A1, the G4M1, even the well-armed A6M2, were by British and American standards unacceptably vulnerable to return fire. But the Japanese, with land forces hugely dependent on air power, conquered in less than six months all they had set out to conquer.

On the principle that in war only results count, the Japanese cannot be said to have been ill equipped for the offensive they had in view when hostilities began. They were not so well equipped for a defensive role. The Tokyo raid of April 1942 was a straw in the wind which might have suggested that the time had come for them to overhaul their panoply of war with such a role in view. But they did not take the hint. When confronted with the problem of holding the territories they had won, in effect they departed from their planned strategy by refusing to stand on the defensive. They preferred to aim at putting it out of the enemy's power to hit back from secure bases. This they believed they could do by bringing the American carrier fleet to action in the Central Paritie and by seizing. Antipodean outposts which would place them across the reinforcement route between the continental United States and Australasia.

## The Corn! Sen and Midway Island

The abortive scaborne expedition to Port Moresby which led to the Battle of the Coral Sea was planned in January, when the Japanese were still thinking in terms of a defensive perimeter intended to run from the Indonesian archipelago through New Guinea to the Gilbert Islands. It was launched in the context of the new strategy which envisaged fresh conquests in the South Seas. The naval authorities expected the Port Moresby Invasion Force and an accompanying light fleet carrier, the recentlycompleted Shoho, to be opposed by carrier-borne and land-based aircraft, but counted on a supporting sweep by the Shokaku and the Zustaku to bring them another resounding triumph. They could not foresee that American carrier-borne aircraft searching in the wrong direction for their fleet carriers would disrupt their plan by chancing upon the Shoho and sinking her. In the ensuing battle between two Japanese and two American fleet carriers - the first of its kind in naval history - the Americans lost the Lexington and their torpedo-bombers. mere conspicuously unsuccessful. The Japanese. suffered only superficial damage to one of their carriers and trifling damage to the other, but broke off the action in the belief that both American carriers had sunk. The withdrawal of their fleet carriers and the loss of the Shaho compelled them to recall the Port Moresby Invasion Force, which never reached the Coral Sea.

The true significance of these events was not

clear at the time. While the battle was still in progress, the Australian press and radio described it as one which would decide the future of Australia. It did decide the future of Port Moresby; but even that did not become apparent until losses suffered in the decisive Battle of Midway Island forced the Japanese to give up the whole idea of a seaborne expedition. A disastrous attempt to pass troops to Port Moresby by an overland route without adequate air cover then exploded the myth of Japanese invincibility.

The Battle of Midway Island brought the confrontation on which the Japanese were counting to complete the destruction of American naval power. They looked forward to it with a confidence which might have seemed to an impartial observer not ill founded. Without calling on the Shokaku and the Zuikaku, they were able to assemble an air striking force of four large carriers. Their opponents had three. Their carrier-borne aircraft had a bigger radius of action than the enemy's, their naval airmen were as well trained as any in the world. Their torpedoes were not only superior in range, speed, and weight of warhead to those used by the Americans, they were also more reliable.

The Americans did, however, have the benefit of foreknowledge of the enemy's intentions, and they were able to use Midway Island as a base for bombers, fighters, and maritime-reconnaissance aircraft. Their land-based bombers scored no hits on Japanese carriers, their land-based Buffalo and Wildcat fighters proved no match for the A6M, But these aircraft did make an indirect contribution to the resounding victory won by the American carrier force. Their intervention after the Japanese commander had sent a striking force to deliver a softening-up attack on Midway Island led him to order dive-bombers and torpedo-hombers which were standing by to attack any American warships that might appear to rearm in readiness for a further attack on objectives ashore. He rescinded the order after learning that American ships were approaching his fleet. The result was that the arrival of torpedo-bombers and dive-bombers from the American carriers caught him at a moment when he was in the midst of recovering the aircrast despatched earlier in the day, and when some of his remaining aircraft were still armed with the wrong weapons and others in the process of exchanging them for the right ones. Again the American torpedo-bombers were unsuccessful. but in the course of the day all four of the

4 Torpedo-bomber: A Nakapma B5N2 in action during the Battle of the Santa Cruz Islands, October 1942

Japanese carriers were put out of action by dive-bombers from two American carriers, the Enterprise and the Yorktown. The Akagi, the Kaga, and the Soryu sank within a few hours of the first attack, the Hirru next morning.

The destruction of these four ships was the beginning of the end for the Japanese. The loss of most of the troops sent towards Port Moresby by a difficult route through the Papuan jungle was only one of a series of reverses inflicted on them during the next few months. Not only in Papua, but also elsewhere in New Guinea and in the Solomons, their attempts to take or hold positions outside or close to the limits of the shelter provided by their air umbrella were consistently unsuccessful. Repeated setbacks brought demands for more and better long-range aircraft. To some extent the authorities were able to meet these demands by introducing new models or improved versions of existing models; but they also had recourse to the doubtful expedient of disembarking units from surviving carriers and stationing them at land bases. Consequent losses, not merely of aircraft but of skilled airmen, reduced their chances of success in the hypothetical naval battle on which they relied to restore their fortunes. They made creditable attempts to increase the output of their aircraft industry, but could not match the huge productive capacity of their opponents. Many of the aircraft they did produce were entrusted to pilots not qualified by experience to make the most of their opportunities. Shortages of aviation fuel and of raw materials, and wasteful competition between the naval and the military authorities, were among other factors that contributed to their undoing.

It may be asked how they managed to hold out so long when so much was against them. No simple clear-cut answer can be given to that question. Carcless of life and fearful of dishonour, the Japanese fighting man did not give up easily, even in face of hopeless odds. So many courses of action seemed to be open to the Western Powers in 1942 that they would not have found it easy to hit upon a good way of ending the war quickly, even if their councils had not been troubled by inter-service rivalries and divergent national aims. The Combined Chiefs of Staff Committee they set up to supervise the conduct of the war by their armed forces could function efficiently only insofar as its members were well informed about the matters they had to consider and had some degree of control over the allocation of resources.

The Combined Chiefs exercised little control over the allocation of resources in the Pacific theatre, and sometimes had great difficulty in discovering what was going on there. At summit conferences, conclusions about Far Eastern strategy tended to be so broad, so thickly beset with provisos, as to offer little guidance to commandersin-chief who did not always wish to be guided. Clearly, the Western Powers could have ended the war without recourse to nuclear bombing. With that exception, perhaps there was after all no course they could have taken apart from the course they took. If there was one, their failure to find it and agree upon it does not, on the whole, seem nearly as surprising as their failure to avert the diplomatic breakdown which plunged them into a war they were ill prepared to wage.



# 2 The Japanese Aircraft Industry

The Japanese military authorities built their first aeroplane in 1911. This was the year in which the British Army's balloon factory at Farnborough became the Army Aircraft Factory. It was also the year in which Germany startled the world by sending a gunboat to Agadir and bombs from an aeroplane were used for the first time in war. The place was Tripoli, where the Italians were fighting the Turks. The innovator was accused of bombing a hospital, but protested that there was no hospital within miles

Two years eather, in 1909, Louis Bieriot had made the first cross-Channel flight and Hans Grade the first flight made in Germany by the German-born pilot of a powered heavier-than-air machine

Army's balloon factory at Nakano in 1911 was not built to an original design. It was modelled on an imported biplane built in France by the French-domiciled Englishman Henry Farman Five years elapsed before two naval officers, Chikuhei Nakajima and Kishichi Magosi, designed a scaplane which ranks as the first man-carrying powered aircraft designed and built wholly in Japun.

That was in 1916 In 1917 Nakajima founded the Japunese aircraft industry by setting up as an aircraft manufacturer in partnership with Seiber Kawanishi. Two years later the partnership was dissolved. Nakajima then formed the Nakajima Aeroplane Company (Nakajima Hrkoki KK) with financial backing from the Mitsur family. Kawanishi did not re-enter the aircraft industry until 1921, when his engineering company completed its first seaplane. Later the company became the Kawanishi Aircraft. Company (Kawanishi Kokuki KK).

Meanwhile two industrial concerns of considerable standing became interested in aviation. In 1918 the shipbuilding firm of Kawasaki set up an aircraft division and Mitsubishi sent an envoy to France to study the role of aircraft in the First World War. Two years later Mitsubishi formed a subsidiary company concerned primarily with internal combustion engines, but empowered by its articles of association to manufacture aircraft and engines for them as well as engines for motor-cars and lornes. After changing its name to the Mitsubishi Aircraft Company, this offshoot was merged with the parent company as the aircraft and aero-engine division of Mitsubishi Heavy Industries (Mitsubishi Jukogyo KK). Kawasaki formed a wholly-owned subsidiary, the Kawasaki Aircraft Engineering Company, which eventually became a separate enterprise

Other pioneers of aircraft manufacture in Japan were the Aichi Clock and Electric Company, which began to build airframes in 1920, and the Watanabe fromworks Company Watanabe began by manufacturing components, but afterwards built fighters, patrol aircraft, and trainers of its own design in addition to wheels, fuselage panels, and complete aircraft manufactured or assembled to designs aponsored by other firms or by government agencies. During the Second World War the Aichi Aircraft Company was formed to take over Aichi's airframe and aero-engine interests, and Watanabe was reorganized as the Kyushu Aeroplane Company

The Tachikawa Aeroplane Company
(Tachikawa Hikoki KK) was formed in 1924. Its
output remained small until 1941, when huge
additions were made to its paint. The Japanese
Army's First Air Arsenal (Dai-Ichi Rikugun
Kokusho) was also at Tachikawa, as was the
army's Aerotechnical Research Institute
(Rikugun Kokugijutsu Kenkyujo). Other government arsenals which eventually became of
considerable importance to the aircraft industry
were the 1st, 11th, and 21st Naval Air
Arsenals at Kasumigaura, Hiro and Sasebo, the
Koza Naval Air Arsenal at Koza, and the
1st Naval Air Technical Arsenal (Dai-Ichi Kaigun
Koku Giptsusho) at Yokosuka.

#### Towards Self-sufficiency

By the beginning of the thirties the Japanese were, therefore, fairly well provided with the means not only of building but also of designing their own aircraft. At least half a dozen commercial firms, in addition to the arsenals at Kasumigaura and Yokosuka, could call on the services of competent engineers, some of them graduates of foreign universities. The fact remains that, for nearly fifteen years after the hirst World War, the Japanese naval and army air

forces relied largely on imported aircraft, aircraft of foreign design built under licence, or copies or modifications of such aircraft. One reason was that, as long as Japan adhered to the Washington Naval Treaty and was ruled by statesmen who shared the British and American view that the piling up of armaments was a potent cause of international disputes, the demand for naval and military aircraft was fairly small

However, circumstances alter cases, Japan was hard hit by the world economic crisis that followed the Wall Street crash of 1929, Wellmeaning but bewildered political leaders, accused by self-styled patriots of selling out to Big. Business and subordinating the interests of landowners, farmers, and peasants to those of the urban proletariat, lost control of events at home and abroad. When a mysterious explosion. led to an exchange of shots between Chinese. troops and the Japanese Kwantung Army in Manchuna, the Kwantung Army took it upon itself to occupy strategic points throughout the region and set up the puppet state of Manchukuo Armed bands roamed the streets of Tokyo, assaulting persons of whom they disapproved. In the spring of 1932, after serious trouble had arisen in China and at home, two prominent industrialists and a prime minister. had been murdered, the Emperor was advised to abandon the party political system and appoint a non-party government. The country's new leaders gave formal recognition to Manchukuo, took Japan out of the League of Nations, and sanctioned military reforms for which army officers had long been pressing

Thereafter Japan's policy was to re-equip her naval and army air forces with aircraft of Japanese design and manufacture. Foreign aircraft were still bought, but only for study or to serve as stopgaps until Japanese aircraft were ready. New firms entered the industry. One of the first was the Japan Aeroplane Company, formed in 1934. Three years later, the outbreak of an undeclared but ferocious war with the Nationalist China of Chiang Kai-shek gave the arms trade a further boost. So did the fear of an all-out attack by the Soviet Union and a number of clashes with Soviet forces on the borders of Outer Mongolia and Siberia, In 1937 the Ishikawajima Aircraft Industries Company was formed as an offshoot of the shipbuilding firm of that name. The Manchurian Aeroplane Manufacturing Company (Mansyu Hikoki Seizo) was established with government support

n 1938. The Hit ichi Aircraft Company and the Showa Acroplane Company followed in 1939.

The new times were small in comparison with such grints as Nikirima and Mitsubis ii but: some them were destined to make valuable. contributions to the national catput during the Second World Wir. H tucht produced nearly. I some after all and some 13,000 acroscopanes. between 1941 and 1948. It costs none of the recall was all combitant type Mansya Hikok be It we lover 3 are give new and roughly the some nomber of interest. Hese included some 830 c mb a cred ift bant under heerce. The Japan Acroplane Company (Nippon Hikoko) contributed nearly 3,000 aircraft, mostly trainers. There is some conflict of evidence as to Show is a mediction, but it seems to have included at least 200 D3A2 dive-hombers but for the navy

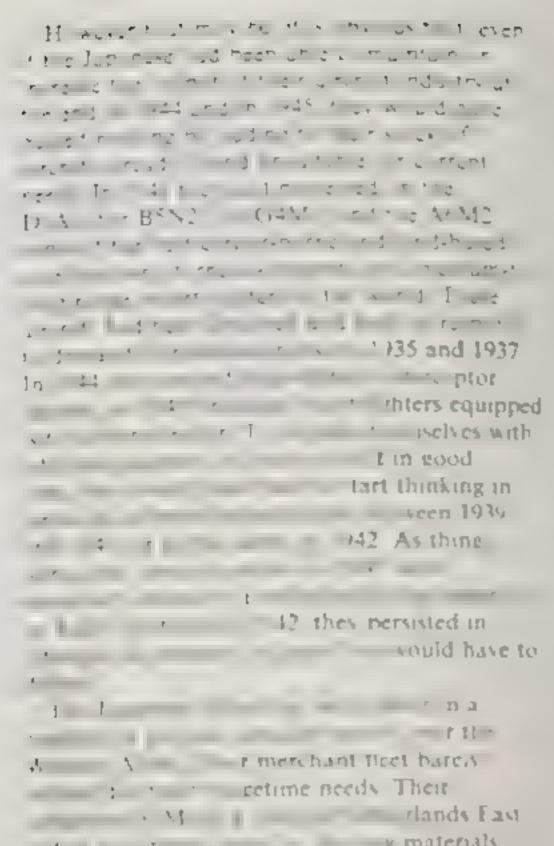
#### Government Control

In 1938 the government secured a vibitantial de re- of control over the adustry by requiring every nr odt to initactaring company with a capital of 3 not only called more to take out alacross and subtent its production and expansion. ple at the first discrition. In return the companies were granted various tax re chainst remissions. These controls were tightened when the spring of 1941 brought a visible deal acid Japan's prospects of gaining access to the raw materials of the Netherlands East Indics without having to light for them. But they did not by any means ensure that the best use was made of the available resources. At any rate during the first two years of the war of 1941-5, men were called up for the armed forces without regard to the needs of the aircraft industry. At the same time little was done to curb wasteful competition. between the services. Some aircraft manufacturers catered only for the army or the mass some for both. By steering raw materials which they introduction may be the firms of their choice, the evaluate to litter cantherptics could exert a oned rable after accounting pattern of preduction. In 1943 the government at last set up a

In 1943 the government at last set up a Shorter of Munitions to control to allocation of all circuit applies his that time there was art as a not follow above certification and the refersive had become accustomed to too sestera or added a term by which raw materials had been hard at in the past bonto the information ment was worked out by which the minites in datases are depirtue its agreed on mentally apotas for each factory in the light of reports from manufacturers on the re-

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exhausted by long hours in the factories and to make fresh plans for the future. That did not happen



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For the Western Allies the high-altitude raids of 1944 the area attacks of 1945, the dropping of the ir bords on or near Japanese cities in broad daylight would have been difficult, to say the least, if the Japanese had been in a position to dominate their own air space. Some good defensive fighters did emerge from Japanese factories towards the end of the war, but they were too few and they came too late. They weeded further development to make them

1 of ct remains that the achievements of I. . . . . oreraft manufacturers between 1941 and 1945, and even between 1933 and 1940, exposed the fallacy of the belief, widely held before the war, that they were capable of producing only copies of obsolescent European and American machines, If the figures cited in the United States Strategic Bombing Survey are correct, they produced between 1941 and 1945 ome 50,000 fighters, bombers, and reconnot meet a ft, nearly 70,000 aircraft of all M. y were of exceptional quality, even by British American, and German standards About three-quarters of the fighters, bombers, and reconnaissance aircraft came from Nakajima (37 per cent), Mitsubishi (23 per cent), and Kawasaki (15 per cent). Aichi produced about 7 per cent, Tachikawa 6 per cent, government arsenals about 41 per cent, Kawanishi and Watanabe or Kyushu each about 3 per cent, smaller firms about 13 per cent. But these figures do not accurately reflect the contributions made by the various firms to design and development. Some aircraft designed and developed by one firm were manufactured in large numbers by another, or by several others; some of the smaller firms produced substantial numbers of aircraft sponsored by government arsenals. Nearly ten times as many A13A1 scaplanes designed and developed by Aichi, for example, were built by Watanabe or Kyushu as by Aichi themselves

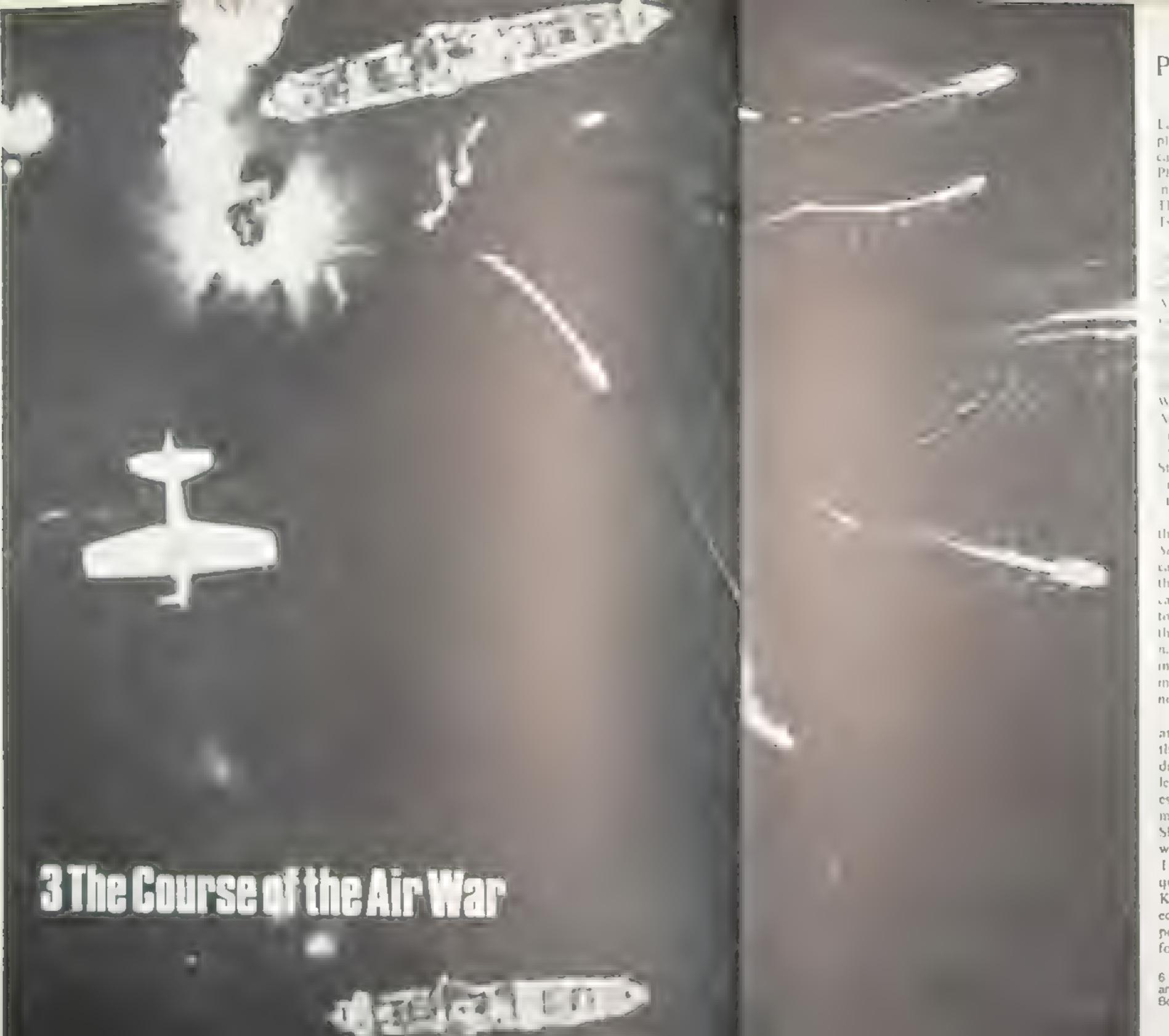
Nakajima with 28 per cent, Mitsubishi with 18 per cent, and Kawasaki with nearly 12 per cent still head the list. Tachikawa – prolific manufacturers of small training aircraft – come next with 9½ per cent and are followed by Aichi with 5 per cent. Firms which produced between 2½ and 4 per cent of all aircraft manufactured in Japan or Manchukuo between 1941 and 1945 include Nippon Hikoki, Watanabe or Kyushu, Mansyu, Kokusai, Kawanishi, and Hitachi.

Government arsenals produced between 3 and 4 per cent of the total, six smaller firms the remaining 4 per cent.

Mitsubishi and Nakajima, in that order, were by far the largest producers of aero-engines. Of 116,577 engines said to have been manufactured between 1941 and 1945, Mitsuhishi are credited with producing about 36 per cent, Nakajima some 31 per cent, Hitachi nearly 12 per cent. Kawasaki, according to the American figures, produced rather less than 9 per cent. Government arsenals were responsible for some 5 per cent. The rest were produced by six firms, none of whom contributed more than 2 per cent of the total output. These figures are for acro-engines of all kinds. Most of the first-line fighters, bombers, and reconnaissance aircraft used against the Western Allies were powered by Mitsubishi or Nakajima engines, relatively few by engines designed and built by Kawasaki or Aichi.

## Dispersal

The greater part of the Japanese aircraft industry was concentrated until the latter part of the war at or near Tokyo, Nagoya, and Osaka. These places were beyond the reach of B-29 bombers based in India and refuelling at Chengtu in China, but could be reached by B-29s from the Marianas. When the Americans took Kwajalein in the Marshall Islands early in 1944, the Japanese authorities recognized that they could not count on holding the Marianas. A plan was made to disperse aircraft production to factories wholly or partly below ground, but the Supreme Command hesitated to put it into effect for fear that the immediate effects on output might be disastrous. In the following November and December manufacturers began on their own initiative to shift plant to places they considered relatively safe. In February 1945, the authorities made compliance with official plans for dispersal obligatory and decreed that aircraft manufacturers should have first call on building facilities and transport. But they had waited too long. Only a few aircraft and aero-engines built in underground factories were completed before the end came in August. The victorious Allies, when they entered Japan, found large quantities of plant dispersed in mines and quarries, old or newly-constructed tunnels, even the basements of large shops. Schools, mills, and warehouses in various parts of the country were crammed with the paraphernalia of sub-contractors.



## Prelude to War

Larly in the Lirst World War, the Japanese placed themselves across the lines of communication between the United States and the Philippines by occupying the German colonies in the Marshall, Caroline, and Mariana Islands. They also seized the German concession at Isingtao, in the Chinese province of Shantung

At the end of the war, Japan was awarded

e of Nations mandates for the islands r troops. She was even allowed to thold in Shantung, but not for long Vit e outcome of pressure exerted by the I States on her wartime associates, the cession was relinguished a few the war to the Chinese; the twenty- d to lapse; and the Japanese accepted at W on a naval treaty which allowed the and the British to maintain abstantially larger battleffeets than theirs. But by bectal arrangement Japan and the United States were each allowed to complete as outsize. irriers two projected battleships which would therwise have been scrapped.

The Japanese thus acquired the Akagi and the Kaga, the Americans the Lexington and the Saratoga. The possession of ships capable of carrying about seventy aircraft each encouraged the navies of both countries to develop specialist carrier-borne fighters, dive-bombers, and torpedo-bombers. The British, contenting themselves with smaller carriers which many naval strategists thought more likely to be useful in a future war, tended to rely more on multi-purpose carrier-borne aircraft which were not particularly efficient in any role.

After accepting the Washington Naval Treaty and withdrawing from Shantung, Japan reduced the peacetime strength of her army by four divisions and appeared to have relinquished, at least for the time being, any intention of establishing hervelf on the mainland of Asia by means other than peaceful economic penetration. She claimed no territorial rights in China, but was allowed to maintain a Garrison Army near trents in to protect her nationals in the legation quarter at Peking, and a force called the Kwantung Army in Manchuria to safeguard her economic interests there. Like the other treaty powers, she was also entitled to station a small force in the International Settlement at Shanghai,

6 A Mitsubishi A6M3 fighter photographed during an Alked attack on Japanese transports off Bougainville, October 1942

However, in Japan as in many other countries, one effect of the economic troubles that followed the Wall Street crash of 1929 was to undermine confidence in popularly-elected governments. At the London Naval Conference of 1930 Japan accepted further naval restrictions Her Chief of the Naval Staff resigned in protest, and the government was accused of defying the constitution by disregarding his advice. The sequel was an angry controversy whose echoes were still reverberating when, in the following year, a mysterious explosion damaged the Japanese-controlled South Manchurian Railway. Shots were exchanged between the Kwantung Army and Chinese troops. The Kwantung Army then seized strategic points throughout Manchuria and set up the puppet state of Manchukuo.

The Chinese retalizated by boycotting Japanese goods. The Japanese delivered an ultimatum and disembarked at Shanghai an expeditionary force which advanced about twelve miles before mediators persuaded it to withdraw on the ground that the ultimatum had been accepted.

These events had far-reaching effects on Japan's relations with foreign powers. The Chinese affected that Japanese agents had staged the radway incident in order to provoke a clash-The almost universal credence given to this allegation outside Japan aroused so much indignation in Tokyo that the government became no more capable of suppressing violent demonstrations by right-wing extremists than it. was of restraining the Kwantung Army. In the spring of 1932 the Emperor, acting on advice, dismissed his ministers and appointed a nonparty government which recognized Manchukuo, gave notice of Japan's impending withdrawaifrom the League of Nations, and sanctioned reforms which many army officers considered long overdue. These included re-equipment of the naval and army air forces with aircraft of J to Two con , . . . It rett e de se le mate ther is a clother best frest. treat ti ti it is the time free t rand of the state In I for a little to a state engage in a major war. Between 1932 and 1937 Active Redection person ( 11 the property was part of contract of tractions A George of Patricians er en en en table source Leion

and the Chinese Nationalist government of Chiang Kai-shek, but hoped by skilful diplomacy to avoid a situation in which the two might sink their ideological differences and combine against her.

As things turned out, she was unable to prevent the Moscow-schooled leaders of the Chinese Communist Party from making considerable headway with Chiang Kai-shek. Alarmed by the prospect of an alliance between Nanking and Moscow, she accepted in 1936 a German offer of a pact ostensibly directed against the Communist International but containing secret clauses which bound both parties to give no help to the Soviet Union should either of them be attacked from that quarter.

#### The 'China Incident'

In the summer of the following year a dispute arose between the Japanese North China Garrison Army and the Chinese Twenty-Ninth Army as the result of an incident near the Marco Polo Bridge. The Chinese authorities on the spot accepted proposals for a local settlement, but Chiang Kai-shek appealed to the treaty powers, Meanwhile both sides moved up reinforcements, The outcome of more fighting in the Tientsin area was that an undeclared but murderous war between Japan and China erupted on 13 August in the neighbourhood of the International Settlement at Shanghai, A week later Chiang Kai-shek signed a pact with the Soviet Union and was promised early delivery of weapons and ammunition to the value of a hundred million. Chinese dollars

Thereafter the Western Powers and the Soviet Union vied with each other in supplying Chiang Kai-shek with arms and credits. The Japanese continued to build up their naval and army air forces and tried repeatedly to induce the Western Powers to cut off supplies by making life difficult for their nationals resident in China. The Americans retaliated by denouncing their commercial treaty with Japan.

effective, the Japanese were staggered by the news that Germany had signed a pact with the Soviet Union. In the meantime clashes with Soviet troops in disputed territory near the frontiers between Manchukuo, Siberia, and Outer Mongolia convinced them that Russia's armed forces were more formidable than they had supposed. They were particularly impressed by the Tupolev SB-2 bomber, already met over

China and almost as fast as the Nakajima Ki-27 fighter.

The conclusion reached by a new government which took office just as the Second World War began was that Japan must at all costs avoid war with Russia and improve her relations with the Western Powers. At the same time she must continue to expand her aircraft industry and build up her naval and army air forces.

But that was before Hitler's armies swept through Western Europe. In the summer of 1940 a new Japanese government saw things rather differently. After the fall of France, Britain seemed so close to defeat that an unashamedly pro-German Foreign Minister, Yosuke Matsuoka, was able to persuade his colleagues and the Privy Council to sanction a Tripartite Pact with Germany and Italy, on the understanding that Japan was to receive a large slice of the British Empire in return for her promise to do all she could to keep the United States out of the war. Almost simultaneously, the French authorities in Indo-China conceded to Japan the right to use the northern part of the country as a base for operations against Chiang Kai-shek.

Matsuoka then tried to transform the Tripartite Pact into a four-power pact with Soviet Russia as the fourth party. The most he could obtain from the Russians was their signature to a bilateral pact which they dishonoured as soon as it suited them to declare war on Japan

Meanwhile the Japanese faced a slow decline in their reserves of fuel oil as a result of restrictions on exports imposed by the United States. After trying in vain to persuade the Dutch to sell them large quantities of oil from the Netherlands Last Indies, they decided in the summer of 1941 to occupy bases in southern Indo-China from which an invasion of the Netherlands East Indies could be launched if the need arose. They came to the conclusion at a high-level conference on 2 July that these bases must be occupied even at the risk of warwith Britain and the United States, but barely a fortnight later forced Matsuoka out of office as the prelude to a renewed attempt to restore. friendly relations with those countries.

On the initiative of the Americans, Britain and the United States responded to the new situation in Indo-China by putting an embargo on commercial and financial transactions with Japan and persuading the Dutch to follow suit. The Japanese were thus deprived at a stroke of

three-quarters of their foreign trade and ninetenths of their supplies of oil. Their naval and military striffs began, for the first time, to base their plans on the assumption that hostilities might began before the end of the year, but the sovernment redoubled, is efforts to negotiate a peaceful settlement.

## Japan goes to War

The negotiations were conducted on behalf of the Western democraces by the American Secretary of State, Corded Hull He told the Jipanese on IS November that public opinion in the United States would not tolerate a comprehensive settlement of the Far Fastern question as long as they adhered to the Tripartite Pact. They therefore proposed on 20 November an interim agreement whose terms should, they say see ted, note de tre lifting of the embargo and withdraw d of their forces from southern Indo China. They also asked for a free hand to make peace with the Dutch for raw materials.

These terms were unacceptable because the Americans were not prepared to give Japan a free hand in China or allow her to buy more oil than she needed for civilian purposes. Counterproposals were drafted by the State Department and discussed with representatives of the Australian, Chinese, Dutch, and United Kingdom governments. But they were not shown to the Japaness On 26 November, Cordell Hulls told the Japane convoys in Washington that their proposals for an interim agreement were unacceptable, withheld the counter-proposals, and gave Japan a virtual ultimatum by demanding the withdrawal of her armed forces. from all parts of China and Indo-China. He forgot to add that this was not meant to apply to Mar nukuo

The Japane errorement and service chiefs acted on the following day that this was too big a price to pay for a a new commercial treats and other benefits offered by Hull. At a conference afterded by the Emperor on 1 December Japan form any decided to go to war on the ground that her national existence was at at the

Die result was that hostilities began at a very bad noment for the Western Powers. The An cricins were striggling to make the Philippines date is the by sending B. 17 nombers there as fast is they could be prepared for service and bases be developed for them. The British had searcely began to be ring to Eastern Heet by which they

hoped to gain control of the South China Sea and thus protect the Malay peninsula and the Indonesian archipelago from invasion. Neither expected to be ready before the spring of 1942. For the Japanese, on the other hand, a December deading meant that they could strike before senous inroads were made on their oil reserves and before the south-east monsoon in the South China Sea and winter gales in the North Pacific reached their full force. Furthermore, the Russians would be less likely to stab them in the back if they launched their southward drive when Siberia and Manchukuo were snowbound.

# The Japanese Plan

Japan went to war in 1941 for the oil, rubber, tin, and bautite of South-Last Asia and the South-West Pacific. Her most urgent need was to gain access to the oilfields of Sumatra. But she could not afford to send her troops straight to the Netherlands Fast Indies at the cost of leaving their flanks uncovered. She would begin, therefore, by overcoming the British and American garrisons of Malaya and the Philippines, eliminating the British outpost at Hong Kong and seizing Borneo. A three-pronged advance to the Indonesian archipelago wouldthen be made by way of the Molucca Passage, the Makassar Strait, and the South China Sea-Ultimately Japanese forces would advance to a bne running from the frontier between India and Burma through the Adaman and Nicobar Islands. to Christmas Island, from Clinstmas Island. through New Guinea and the northern Solomons. to the Colbert Islands, and thence by way of Wake Island to the Kutile Islands, Japanese experts believed that, if that line could be strongly held, the Western Powers might be willing to leave the invaders in possession of their conquests rather than go to the trouble and expense of turning them out

## Forces and Tasks

The combatant troops at the disposal of the Japanese Army in December 1941 consisted of fifty-one divisions of all arms, a cavalry group, and five air divisions. These were supplemented by fifty-nine independent mixed brigades or similar formations, not all of them suitable for an offensive role. Forty divisions and three air divisions were needed to fight Chiang Kai-shek and provide for the security of Japan, Korea, Manchukuo, and occupied China. So only

eleven divisions, two air divisions, and a number of independent formations of approximately brigade strength were available for the capture of Hung Kong, Malaya, Burma, the Philippines, Borneo, and the Netherlands East Indies, to say nothing of parts of New Guinea and the Solomons and other places to be held as outpost positions. It followed that the offensive would have to be delivered in stages so that the same troops and air formations could be used successively in different areas. Even then, not nearly enough of either would be forthcoming unless the navy made substantial contributions

The Japanese naval authorities, traditional, well disposed towards Britain and the United States, had always disliked the pro-German policy which led to the Tripartite Pact. They distrusted the Russians and had little faith in the Russo-Japanese pact of 1941. Nevertheless they were willing, if war had to come, to play their part not merely by looking after the naval side. of the offensive, but by providing landing parties for the capture of outlying territories and by devoting most of their land-based Eleventh Air Fleet to tasks which would have been performed by military aircraft if the Army Air Force had been stronger. They were also willing to risk the loss of part of their carrier force in an attempt. to cripple or destroy the United States Pacific Heet at the outset of hostilities. Far away at Pearl Harbor in the Hawanan Islands, the United States Pacific Fleet would not be able to make any direct contribution to the defence of Hong Kong, Malaya, Borneo, or the Philippines, But Japanese naval strategists accepted the axiom that a fleet in being was an asset of which the enemy ought, if possible, to be deprived

The British had shown, by crippling the Italian battleffect at Taranto in November 1940, that carrier-borne torpedo-bombers could be used effectively against warships in shallow water. The Japanese Naval Staff began early in 1941 to study the feasibility of a similar but far more ambitious attack on the powerful American feet which had moved from the continental United States to Pearl Harbor in the previous summer. In September naval airmen began practising with specially modified torpedoes and armourpiercing bombs. A war game suggested that the attempt might cost Japan two carriers, but the project was approved in principle early in November.

The air forces available for offensive operation on the outbreak of war, and the tasks allotted to them, were as follows:

## ARMY AIR FORCE

## 3rd Air Division

The 3rd Air Division, some 400 aircraft strong, was equipped with Nakajima Ki-27 and Ki-43 fighters, Mitsubishi Ki-51 ground-attack and tactical reconnaissance aircraft, Mitsubishi Ki-30 and Nawasaki Ki-48 light bombers, Mitsubishi Ki-21-11 heavy bombers, and Mitsubishi Ki-15 and Ki-46 strategic reconnaissance aircraft. Its task was to support the invasion of Malaya and the capture of Singapore, British Borneo, and northern Sumatra by the Twenty-Fifth Army (5th, 18th, and 56th Divisions and Imperial Guards Division)

## 5th Air Dhiston

The 5th Air Division, with some 300 aircraft, was equipped with Nakajima Ki-27 fighters, Mitsubishi-Ki-51 ground-attack and tactical reconnaissance aircraft, Tachikawa Ki-36 army co-operation. aircraft, Mitsubishi Ki-30 and Kawasaki Ki 48. light bombers, Mitsubishi Ki-21-II heavy bombers, and Mitsubishi Ki-15 strategie reconnaissance. aircraft. It also had a squadron of Mitsubishi Ni 57 transport aircraft. On the outbreak of war the greater part of the division was to provide cover and support for the invasion of the Philippines. by the Fourteenth Army (16th and 48th Divisions. and attached troops). After the capture of Manila it was to move to South-East Asia and support an advance from Siam into Burma by the Eifteenth. Army (33rd and 55th Divisions), The 45th Air. Regiment, detached from the main body of the division and equipped with some eighty aircraft, was to provide cover and support for the capture of Hong Kong by the 38th Division and attached troops,

#### NAVAL AIR FORCE

#### First Alr Fleet

The I just Air Fleet consisted of some 550 aircraft embarked in six fleet carriers and three light fleet carriers. The carrier force was organized as follows: 1st Carrier Squadron (fleet carriers).

Akaga (36,600 tons, 30 knots, 63-72 aircraft) Aaga (36,000 tons, 30 knots, 63-72 aircraft)

2nd Carrier Squadron (fleet carriers)
Survice (18,500 tons, 33 knots, 63-72 aircraft)
Hirvice (18,000 tons, 33 knots, 63-72 aircraft)

3rd Carrier Squadron (light fleet carriers)
Hotho (7,470 tons, 25 knots, 21 aircraft)
Zutho (13,000 tons, 26 knots, 31 aircraft)

4th Carrier Squadron (light fleet carriers)

Rvujo (8,500 tons, 31 knots, 31 aircraft)

Shoho (due for completion January 1942) (13,000 tons, 26 knots, 31 aircraft)

Sth Carner Squadron (fleet carriers)

Zuikaku (25,675 tons, 34 knots, 63-72 aircraft)

Shokaku (25,675 tons, 34 knots, 63-72 aircraft)

On the outbreak of war the 1st, 2nd, and 5th

Carrier Squadrons were assigned to a Striking Force commanded by Vice-Admiral C. Nagumo. The authorized establishments of the units embarked in the six fleet carriers provided an initial equipment of 108 A6M2 fighters, 126 D3A1 dive-bombers, and 144 B5N2 attack-bombers, or a total of 432 aircraft with immediate reserves. The task assigned to the Striking Force was to destroy or cripple the United States Pacific Fleet at Pearl Harbor and destroy

aircraft at neighbouring airbelds.

When bostribes begin, the 3rd Carrier Squadron was attriched to the Combined Heet for training and was in process of relegal prient with new asceraft. The 4th Carrier Squadron was assigned to Vice-Admiral N. Kondo's Sou bern Force, whose task was to provide cover and support for operations by the Forteenth H (teenth Sixteenth and Twenty-Hab Armies, which together formed the Southern Area Army The squadron's only carrier, the Ringo, was to be joined by the Southern when she was ready

## Eleventh Air Fleet

The Elevent's Air Flee, consisted of the 2-st, 22nd, and 23rd. Air E-off is and a Special Scap and Tender. Detachment

The task of the 21st and 23rd Air Earl as was toassist the Lourteenth Army and the 5th Air Dry's onby stoking from bases in Formosa at objectives in the Parappines, and fact to move to the Perappines for the purpose of providing a rich and support for the capture of Date i Borrico, Celebes. An boina-Timor, Java, and southern Sematra by the Sixteenth Army Cold Disposition and bendge orters. stooms to be reinforced after the capture of Hong. Kengana Minda by the 18th and 18th Divisions and around to nation from the Learner of the Amos The 21st Art Hoteli was equipsed with 120. G4M1 land based long range type bers (css. 32) attached to the 22nd Air Flotil i) and 24 Hole. thring bouts. The 23rd Air Hotida had bearly 200. First based A6M2 fighters, about 70 G3M2 find based. long-range bombers, and 24 C5M2 In d based. strategic reconnaissance nireraft,

The task a social to the 22 of Air Flot flaskas to supplement the support a ven by the 3rd Air Division to the Twenty-Eifth Army in Military British Borneo, and northern Sumatra, Its 90 G3M2 bon bers were anomented by 42 G4MHs borrowed train the 21st Air Hohl is and it was a ven a special detachinguit of 36 AcM2 Epiders and 6 C5M2 strategic receives a prospectation of the military and the company of the prospectation of the p

He Special Sciplate Tencor Detachment consisted of the sciplane tenders Mitailia and China, each with twenty aircraft. Its task was to contribute to the invasion of Malaya by keeping watch for submarines which might approach transports carry notice. Twenty-lifth Army's troops.

#### 24th Air Flotilla

II. 24 b. Air Elot lasse than into a equipment of 30 GMM2 and brack in a ringe bombers and 24 H6k flying bombs was sometimed in this mandated is milk is part of Vice Admiral Solineuse v South Seas Force. The tasis vavy medition to we eato deliver softening up attacks on Guam, Wake Island, and Mos 9 and Tomasa in the Gilbert Islands, and after the return of the Striking Force from Pearl Harbor to each perite with the lasse Air Elect in providing cover and support for last Los in New Guanca and the Bistanck archipelage by naval parties and a regiment detacled from the SMB Devision.

#### Miscellaneous Naval Air Units

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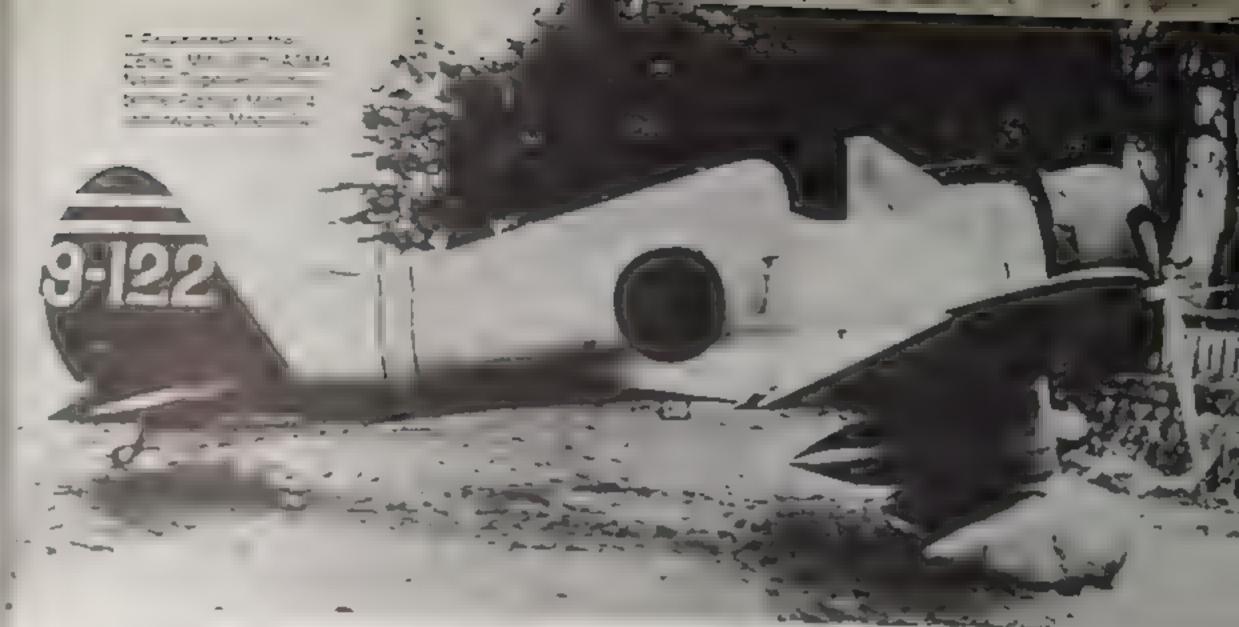
# Pearl Harbor and the Philippines

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## Malaya, Hong Kong, British Borneo

The Japanese assigned to the conquest of Malaya, British Borneo, and northern Sumatra their best troops and some 560 first-line aircraft. The British had calculated in 1940 that, in the absence 1 strong fleet, they would need 582 aircraft to provide an adequate defence for the Malay peninsula, British Borneo, and shipping in idjacent waters. In December 1941 they had 158,

More than an hour before the first torpedoes were launched and the first bombs dropped at Pearl Harbor, three Japanese transports anchored off Kota Bharu, in northern Malaya Soon afterwards landing eraft began to put troops of the 56th Infantry Regiment ashore. The time in Malaya was 12.45 a.m. on Monday, 8 December

The British suspected, rightly, that this was a subsidiary landing and that the main landings would be made at Singora and Patani, in Siam, since these were the places from which an avading force could most easily gain access to the road and railway that crossed the isthmus of Kra and ran down the west coast of Malaya Nevertheless they sent aircraft to attack the transports by moonlight, and ordered an all-out air attack at dawn. All three transports were damaged and withdrew northwards. The aircraft despatched at dawn, finding little or nothing to attack at Kota Bharu, landed at airfields in

northern Malaya to refuel and rearm. The result was that many of them were caught on the ground by bombers of the 22nd Air Flotilia which had left southern Indo-China at first light.

In the meantime about seventeen bombers the 22nd Air Flotilla attempted a moonlight faid on airfields near Singapore. Most of their bombs fell in the built-up area of the town.

By 9 December the Japanese were firmly established at Singora, where they met little more than token opposition from the Siamese. The British decided to devote most of their surviving bombers to two raids on bases established there by the 3rd Air Davision Just as a formation of Blenheims was about to take off for the second raid, it was caught on the ground by some of the 3rd Air Davision's hombers and lost nearly all its aircraft. I from that time until the end of the campaign in Malaya the Japanese could count on a numerical superiority in the air of at least ten to one

Meanwhile the British naval Commander-in-Chief, Admiral Sir Tom Phillips, came to the conclusion that, although he had no carriers and could expect little help from land-hased. arreraft, he would be justified in risking a surprise attack on any Japanese warships and transports. that might be found off Singora and Kota Bharuat dawn on 10 December. His force, called Force Z and consisting of the hattleship Peince of Hales. the battle-cruser Repulse, and four destroyers, left Singapore towards nightfall on 8 December. Phillips asked for fighter protection off Singorn. but a signal transmitted on 9 December told him that it could not be provided. About 1.40 p.m. on that day one of twelve Japanese. submatines patrolling off the coast between Kota Bliatu and Singapore reported his position, course, and speed Vice-Admiral Kondo, commanding the Japanese Southern Force, thereupon ordered a cruiser squadron to fly off its observation aircraft and shadow him. Phillips, recognizing when Japanese aircraft were seen that evening from the Prince of Wales that he could no longer hope to achieve surprise. reluctantly turned for home. Just before midnight, however, he altered course in order to investigate a report that Japanese troops were tandin at Kuantan, on the east coast of Malaya

express purpose of locating and sinking his fleet if the opportunity arose, he seems to have

reasoned that he was unlikely to be attacked at a point 400 miles from the nearest Japanese naval airfield outside Saigon

About two hours later a second Japanese submarine reported his course and position. Bombers of the 22nd Air Flotilla which were preparing for a night attack on Singapore exchanged their bombs for torpedoes and went to look for him, but failed to find him. C5M2s which took up the search before daybreak were more successful. About 10 20 a.m. one of them sighted the two British capital ships and directed a striking force of sixty G3M2s and twenty-five G4M1s towards them. Attacks with torpedoes. and armour-piercing bombs began about II 15 a m. and continued for an hour or more The Repulse sank at 12 33 p.m., the Prince of Wales about fifty minutes later. Destroyers rescued more than 2,000 survivors without interference from the Japanese. A squadron of Buffalo fighters left Singapore seven minutes. after a signal reporting that the Repulse was under attack reached Air Headquarters, but arrived too late to engage the enemy.

Air power thus won for the Japanese complete. command of the South China Sea. It also endowed them with a reputation for invincibility which had a marked effect on the readiness. of the defenders of Malaya to accept calculated risks. Having lost a chance of forestalling the enemy at Singora for fear of offending the Siamese, the British elected to make their first stand at Jitra, in north-west Malaya. An advanced goard of the Japanese 5th Division. attacked them there on 11 and 12 December. but made little progress. Without waiting to be attacked by the main body of the division, the British then abandoned the Jitra position in the belief that their right flank was threatened with encirclement. With troops more or less disorganized by the retreat, they went on to fight a series of expensive delaying actions in the hope. of postponing the enemy's arrival at places from which long-range aircraft might strike at convoys bringing supplies and reinforcements to Singapore. When they did attempt a major stand in January, they were unsuccessful because an unsound disposition by the commander of an ad hoc force enabled the Japanese to outflank their main position.

At the end of January the British withdrew to Singapore Island. Divided from the mainland only by a narrow channel fringed with mangrove swamps, the island was not the fortress that armchair strategists in London

helieved it to be. Three of its four airfields could be swept by observed fire from the mainland. The Japanese had no advantage in numbers so far as land forces were concerned. but their overwhelming air superiority put them in a strong position. After artiflery and air bombardments extending over several days, they had little difficulty in crossing the channel under cover of darkness and establishing themselves in a corner of the island where bombs or shells had cut all telephone lines between front and rear. Mistakes and misunderstandings led the British to withdraw after a few days to their last line of defence covering Singapore town, Most of the built-up area then became a legitimate. target for Japanese gunners and bomber crews. Bombing and shelling caused heavy civilian casualties, blocked streets with rubble, and fractured water-mains. By 13 February armed deserters, chiefly from administrative units or newly-arrived drafts, were reported to be hiding. in the town, seizing small boats or forcing their way abourd ships about to leave for Java or Sumatra. Two days later stocks of food for the troops, of ammunition for field and anti-aircraft. guns, and of fuel for military vehicles were running low, or in some cases were already. exhausted. The municipal authorities reported that so much water had leaked away through fractured mains that the supply was not expected to last more than another twenty-four hours. A total stoppage, they said, might have appalling consequences in a town crammed with refugees. In the light of this report, and of the unanimous opinion of corps and divisional commanders that an attempt to recapture dumps outside the town. could not succeed, the British Commander-in-Chief surrendered that evening on terms which allowed 1,000 of his men to retain their arms as long as their services were needed to maintain or restore law and order.

## Fall of Hong Kong and North Borneo

In 1941 Hong Kong had long been regarded by the British military authorities at home as an outpost which could be only briefly held in the event of war. Shortly before the outbreak of war its garrison was increased from four to six battalions in the hope that a rather longer stand than had previously been contemplated might be possible, but the naval and air forces available for the defence of the whole of the Crown Colony when hostilities began on 8 December 1941 consisted only of one destroyer, eight in terms.

patrol vessels, three obsolete torpedo-bombers, and two Walt is amplibrary. All five of these are after were destrived by the 45th Air. Regment's escorted hombers at the outset of the war as were clear as from aircraft. At the end of a week the orly. Bratis—nay il vessely still allost were two gambouts and some of the motor torpedo bouts and patrol craft.

By the morning of 13 December the garrison completed the withdrawal of its land forces. from Kowloon and the Leised Territories to Hong Kong Island. During the next few days. art ery and air bombardnents knocked out. pathoxes and search light posts of talephone lines at a number of points, and started uncontro able taes in bui t-up areas. Late on 18 December the assielt troops of three Japanese. infantry test bents succeeded in crossing to the ich ind under cover of darkness and fae snicke from cell tanks and a factors set after the bombing. or she me By the evening of 23 December nine. battalions were expore Tacreafter almost incessant artillery and mortar fire, accompanied by low-level air attacks, reduced the de enders to seed straits that two days later the Botish surrendered without terms:

Bratish Borreo was even associated with anly one infinity battalon, a small Cookta. Matthe Service and a few native traps and armed place in the whole of Bratish North Borneo, Strawak, the Branci Protect rate, and Laboun, the authorates came to the conclusion before hostilities becam that the most flex could attempt in the event of war, again from making oil installations more or less used as to trace and would be to defend an airleid near Knell for in we tern Sarawak, a order to prevent an involent most support as a steaping stone towards in a credit of Dutch Borne, which was anto 350 in a from Sharipore.

The Japane e didy occupied undefended local ties in North Homeo about a week after toe of threak of wir. An affack on Kuchme by fill each tour bets or 19 December of difffle diamas, out in the toe labour needed to complete the defences of the articlet familiar incoming to unobtain the Africa distribution of the articlet familiar incoming to a pore decided to at the article should be destroyed. After early he out this order just as two to the force the Lip anese 124th Infantry. Regiment were preparate to come according to open a facility of an and events illy whichew into Dutch Borne.

# Dutch Borneo and the Netherlands East Indies

By the end of 1941 things were going so well for the Japanese in Malaya and the Philippines that early in the New Year a start was made with the next stage of their offensive. In the first week of January the 21st Air Flotilla moved to Jolo and the 23rd to Davao. On 7 January, a mixed force left Davao for Tarakan Island, off the north-eastern corner of Dutch Borneo, Air cover provided by the 23rd Air Flotilla did not prevent Java-based American bombers from sighting and attacking the convoy, but no hits were scored. After securing the northern approaches to the Makassar Strait by occupying Tarakan on 12 January, the Central Force of Admiral Kondo's Southern Force went on to gain control of its southern cut by scizing Balikpapan some twelve days later. By the end of January aircraft of the 23rd Air Flotilla were stationed at airfields in south-eastern Borneo The Eastern Force, moving step by step with the Central Force, and covered by the 21st Air Flotilla, occupied Kema and Menado, in-Celebes, in the second week of January, and by the last week in the month was firmly established at Kendari, in the south-eastern corner of the island. The airfield at Kendari then became the chief base of the 21st Air Flotilla. Amboina, on the eastern side of the southern approaches to the Molucca Passage, was seized on 31 January by a naval landing party and elements of the 38th Division, covered by fleet carriers of the 2nd Carrier Squadron, At Menado the Japanese used twenty-eight transport aircraft from Davao to drop 334 paratroops who should have landed on or near the airfield but were in fact widely scattered.

## Australia bombed

Once established in Celebes, the Japanese were well placed not only to take a further step towards the Netherlands East Indies by occupying Timor, but also to make the reinforcement of Timor extremely difficult. The case for forestalling the enemy there had been apparent to the Allies before Kendari fell, but because they were at first unable to agree on the steps to be taken, it was not until 15 Februshiat a convoy carrying reinforcements left Darwin in Australia. Soon sighted by the crew

of a Japanese scaplane, the convoy was attacked by bombers from Kendari and turned back. On 19 February, less than twenty-four hours after the convoy had returned. Darwin was bombed by carrier-borne aircraft of the First Air Fleet, These were followed by aircraft of the 21st Air Flotilla. Eleven ships were sunk, twenty-three aircraft destroyed and more than five hundred people killed or injured. The Australian authorities, concluding that invasion was imminent, ordered all civilians to leave the town, but their fears were groundless. The Japanese did think of invading Australia, but came to the conclusion that they had no hope of finding either the ten divisions that would have to be devoted to the purpose, or the shipping needed to maintain them.

Almost simultaneously, the Japanese severed the air reinforcement route from Australia to the Netherlands East Indies by seizing Timor Meanwhile, on 14 and 15 February, Mitsubishi Ki-57 transport aircraft carried about 360 paratroops to the neighbourhood of oil installations at Palembang, in Sumatra. The Allies, although warned of their approach, were unable to intercept them because their fighters were preoccupied with attempts to prevent landings from the sea. Within a few days all points of strategic importance throughout southern Sumatra were in the hands of the Japanese and the Allies withdrew their troops to Java

The Battle of the Java Sea, which settled the fate of the Netherlands Fast Indies, followed on 27 February. It was fought between small fleets of approximately equal strength. Neither fleet included carriers, but the Japanese admiral was well provided with cruiser-borne observation. aircraft. The Dutch commander of a hastilyassembled Allied force was not. Had he been able to call on the services of a land-based maritime-reconnaissance force capable of keeping him informed of the enemy's movements, the battle might have had a different outcome. As things were, he lost nearly all his fleet in a gallant but vain attempt to seek out and destroy the enemy's transports, which were kept out of harm's way until the battle was over. Outnumbered and outfought on land, the Allies gave up the struggle in Java on 12 March. On the same day, troops of the Imperial Guards Division landed without opposition in northern Sumatra. The Twenty-Fifth Army thus completed, in just over three months, the mission assigned to it in December.

# Burma and the Indian Ocean

The campaign in Borneo, Celebes, and the Indonesian archipelago, accompanied by the seizure of lightly-garrisoned objectives in Papua, New Britain, and New Ireland, was the last of a series in which the Japanese naval and military air forces were almost uniformly successful. But not quite. The Army Air Force had already suffered a setback in Burma, where daylight raids on Rangoon had to be suspended in face of losses inflicted on the 5th Air Division's bomber force by one American and one British fighter squadron. In the outcome the Japanese were never able to assert unchallenged control of the air in Burma. They began by forcing the Burma Army to make a spectacular retreat to the Indian frontier, but later in the war the British turned the tables on them by allowing their troops to be enveloped and supplying them by air. At the Ngakyedauk Pass and Imphal in 1944 it was not the encircled British but the encircling Japanese who ran out of supplies and had to accept defeat.

The Japanese Naval Air Force first fell short of the complete success to which its leaders had become accustomed when, in 1942, Admiral Nagumo took five of his carriers into the Indian Ocean with the intention of repeating at Colombo and Trincomalee the havoe he had wrought at Darwin and Pearl Harbor. He hoped that, by attacking Colombo on 5 April - which was Easter Sunday - he might provide himself with an opportunity of destroying the new Eastern Fleet assembled by the British since the loss of the Prince of Wales and the Repulse. The Commander-in-Chief of the Eastern Fleet, Sir James Somerville, was forewarned of Nagumo's intention but expected him to arrive a few days earlier than he did. After lying in wait for three days and two nights, he took the better part of his fleet to a new base in the Maldive Islands, of whose existence the Japanese were unaware. By the time Nagumo was seen steering towards Ceylon on 4 April, it was too late for Somerville to intercept him before he reached his flying-off position, but not too late for the defences of Colombo to be brought to readiness or for shipping there to be dispersed. The attack, delivered about 8 a.m. on Sunday, did considerable damage to quays and workshops, but the only vessels sunk were

a destroyer which was refitting and an armed merchant cruiser. A submarine depot stup was holed and one merchant ship was lift but suffered little damage. Later in the day about fitty aircraft from the carriers attacked two cruisers detached from Somerville's fleet and sank both of them, but 1,122 officers and ratings out of a total of 1,546 were rescued after spending twenty-eight hours in open boats or on rafts in shark-infested waters.

During the afternoon of S April Nagamo made off to the south-east to escape interception by Somerville's force. On S April he was seen heading back towards Cevlon with the obvious intention of attacking Trincomi ee. The harbour was clear of sn pping by the time he delivered his attack next morning, but a destroyer a corvette, a tanker, a fleet aux sary, and the eighteen-year-old light fleet carrier Herney were found at sea and sunk. Bombing damaged the dockyard and a neighbouring article, but both at Trincomalce and at Colombo casualties were much lighter than at Darwin or Pearl Harber.

A commerce raid by a force commanded by Vice-Admir il J. Ozawa was fined to coincide. with Nagemo's venture. Or wa lett Mergu. in Lower Burnetton 1 April wita-ten crusers, e even destroyers, and the Rium, poused for twenty-four hours in the channel between the Andaman and Nicobar Islands, and then seta north-westerly course. On 6 April he sank. about 92,000 tons of merchant shipping off the coast of Madras and his aircraft dropped bombs. at two places ashore, doing little damage but giving the inhabitants a great fright. He then made off towards the Majacca Strait, content to have caused so much a arm and confus on that for some time traffic in and cut of Ca cutta way almost at a standstill

# New Guinea, the Solomons, and Strategic Overstretch

By the middle of March 1942, the Japanese were family established in Malaya, Borneo, the Philippines, the whole of the Indonesian archipelago, and Burma as far north as Rangoon All the islands of the Pacific north of the equator and as far east as Wake, Makin, and Tarawa were in their hands. In New Guinea and the Bismarck archipe ago they held Salamaia, Lae, and Finchshaten in the Haon Peninsula, Gasmata and Rabiud in New Britain, and

Karseng in New Ireland. When, later in the month, elements of the South Seas Force supported by the 24th Air Flotilia took possession of Bougainville, Buka, and Shortland Island in the northern Solomons, all that was needed to round off the programme of conquest sketched in 1941 was that the Fifteenth Army in Burma should complete its advance to the Indian frontier.

All this was highly satisfactory from the point of view of the Japanese Supreme Command The fact remained that the First Air Fleet, notwithstanding its brilliant performance at Pearl Harbor, had failed to eliminate the United States Pacific Fieet as a factor in the war. As long as the Americans had a fleet in being and access to air staging posts in the Central Pacific and the Antipodes, Japanese forces in the South-West Pacific would have to reckon with the possibility of a counter-offensive from Australia, nourished by American supplies. As early as January the Japanese Naval Staff had come to the conclusion that Port Moresby, on the Gulf of Papua, should be captured as the prelude to a possible advance to New Caledonia.

Fig., and Samoa. Plans for the invasion of Ceylon were rejected by both the army and the navy on the ground that the time was not ripe for so ambitious a venture and that the requisite forces were not available. Admiral Yamamoto insisted that priority should be given to an attempt to bring surviving warships of the United States Pacific Fleet to action and so destroy them. An expedition to Midway Island, north-west of the Hawaiian Islands and close to the international date-line, was planned with that purpose in view

Such was the state of Japanese thinking about the middle of April. The Americans then introduced a new factor by using B-25 army bombers embarked in the newly-commissioned Hornet to attack Tokyo, Osaka, Kobe, and Nagoya. No more bombs were to fall on the Japanese homeland for a long time to come, but the effects on morale were considerable. Alarmed and confused but still inclined to regard their armed forces as invincible, the Japanese authorities decided to proceed with their plans for expeditions to Port Moresby and Midway Island and then review the outlook



## The Battle of the Coral Sea

The Japanese troops intended for the invasion of Port Moresby embarked in eleven transports escorted by six destroyers. A twelfth transport, with its own escort of two destroyers, carried a naval party which had orders to establish a seaplane base at Tulagi, in the British Solomon Islands Protectorate. The light fleet carner Shoho, a scaplane carrier, four heavy and two light cruisers, one destroyer, and three gunboats were to provide cover and support. The intention was that, once the naval party was safely ashore at Tulagi, the remaining transports and the covering and support forces. should proceed to Port Moresby by way of the Jomard Passage, between the south-eastern extremity of New Guinea and the Louisiade. archipelago.

The Japanese estimated the naval and air forces that might be used against them at perhaps 200 land-based bombers from Queensland and one fleet carrier. They therefore formed a Carrier Striking Force consisting of the fleet carriers Zuikaku and Shokaku, two heavy cruisers, and six destroyers. This was to enterthe Coral Sea by rounding the south-eastern extremity of the Solomon Islands. The idea was that, after dealing with any Allied warships that might appear, the force should proceed to a point about 400 miles from the east coast of Australia and send aircraft to attack Allied aitheids at Townsville, Cooktown, and Horn-Island. In addition to 125 aircraft carried by the Zuikaku and the Shokaku and twenty-one by the Shaho, the Japanese would be able to call on roughly 160 land-based aircraft stationed in the Bismarck archipelago or at airfields from which they could move there at short notice.

The Japanese estimate of the number of Allied hombers in Queensland was correct. On paper the Allies also had about fifty fighters there. another lifty at Port Moresby, and not far short of 200 at Sydney and Darwin, Serviceable strengths were substantially lower. However, when the American naval authorities learned from their intelligence sources about the middle of April that a heavily-escorted Japanese force was due to enter the Coral Sea early in May and that the Zuikaku and the Shokaku were under orders to proceed to the Caroline Islands after their return from the Indian Ocean, they adopted a plan which relied only to a small extent on land-based aircraft. The gist of it was that a task force consisting of the Yorktown, the Lexington.

eight cruisers, thereen destrovers, and a seap and tender, the whole under the coma and of Rear-Admiral E. J. Fietcher, should assemble in the C. r. I. Sex at the beginning of May. The order included an Nastral an cruiser squadrin order. British on mander, Rear-Admiral E. G. Croce.

when he warred at nightla I on 3 May that ear net in the day firmen an recombais area I to seen. Japanese force drembarking at I of gettle histored in that direction and next morning ent a remail to attack any dispoint they entid find. By that time the Japanese support force had left to rejoin the ships aband for Port Moreshy and the covering to relact On 5 May, the covering force was reunited with the invariant and support forces, and that aight the Carrier Striking Force entered the Coral Scit

## Loss of the Shaha

Fletcher spent much of 6 May retailing and searching for the enemy. Eventually become to the conclusion that the invasion force would approach by way of the Jomard Parlage Next morning, fearing that to in old not arrive in time to intercept it, he sent thrace aread of him. to keep watch. Without air cover and attoaced by waves of land-based regatt. Crace nanaged to reach the southern exit of ite To hard P. v. ie. without losing any ships, but saw not mighof the invasion force because Admir if the eye, who was in command of the whole ci terprise and had learnt from his airmen of Eletel er's where abouts, had ruled in the meanting that the invasion, covering and support forces should stay well out of the way until further notice.

About the time when Crace took leave of Fletcher, the pilot of an a teratt it in the Yorktonin saw light cruisers and punbolits of the Japanese support force and reproted them as two heavy cruisers and two destroyers. As the result of a opening error, Elefcher was to dituit two curriers and tour leavy craisers and been seen. He sent about notes of his 141 currier-borne aircraft to attack them. By sheer chance, they form and and sink the \$1000.

Stell with sit a central cture of the enemy's dispositions, factor of decided later in the day to make for Port Marc by during the night and rely on land-need aircraft to on te the Zuikaka and the Sieakaka for similar soon as daylight returned. But he changed his mand when Jupane elarrer iff, da playing recignition signal.

Concluding that the Zuikaku and the Laku could not be far away, and rejecting the idea i night attack with cruisers and destroyers as too risky, he then decided to keep his force concentrated and prepare for action in the morning. The Japanese, too, weighed the arguments for and against a night attack and came to a similar conclusion.

## The Japanese withdraw

Early on 8 May, after both sides had reconnostred at first light, the Japanese and the Americans despatched their striking forces almost simultaneously. When the first wave of torpedo-hombers and dive-hombers from the Yorktown approached the Japanese carriers, the Zuikaku disappeared in a rain-squall and the Shokaku turned into the wind to launch defensive fighters. All but two of the American aircraft then attacked the Shinkaku. The torpedohombers were unsuccessful, but the dive-bombers scored hits which buckled the Shokaku's flight deck so that she could no longer launch aircraft, although she could still recover them Follow-up asterast from the Lexington scored only one hit The Shokaku, burning furiously but not irreparably damaged, made off after arrangements had been made for some of her aircraft to be transferred to the Zinkaku.

Almost at the same moment, the two
American carriers were attacked by the aircraft
which had left the Zinkoku and the Shokuku
earlier. The Yorktown dodged the enemy's
torpedoes but was bit by one bomb which did
not disable her. The Lexington was hit by two
torpedoes and three bombs, caught fire and developed a list. The fires were brought under
control and she was righted, but some hours
later an explosion caused by an accumulation of
petrol vapour damaged her so hadly that she
had to be abandoned and sunk by her own side
Both fleets withdrew from the Coral Sea, and the
Port Moresby invasion force returned to Rabaul
without ever attempting the Jomard Passage

So ended the first naval battle in which no shots were exchanged between ships, all the losses on both sides being inflicted by carrier-borne aircraft. Apart from a destroyer and some small craft sunk, the Japanese lost the Shoho and fought their next battle without the Shokaku and her sister-ship the Zuikaku. The Americans lost the Lexington, a destroyer, and a tanker, but gained a strategic victory by averting the threat to Port Moresby.



# The Battle of Midway Island

Before the Battle of the Coral Sea was over, the American naval authorities were warned by their intelligence sources of impending moves which led to the decisive Battle of Midway Island

The intention of the Japanese naval and military authorities was to set a trap for the Allies by making diversionary landings at Attu, Kiska, and Adak, in the western Aleutians, under cover of attacks on more valuable objectives in the eastern Aleutians by aircraft from the light fleet carrier Ringo and the newly-completed 24,140-ton fleet carrier Junyo. An Aleutian Support Force of four battleships and two light cruisers was to take up a position about half-way between Pearl Harbor and the western Aleutians and engage any Allied warships moving in either direction.

While the Americans were thus preoccupied, twelve transports were to carry about 5,000 men and their supplies to Midway Island and disembark them after softening-up attacks had been delivered by Admiral Nagumo's Striking Force, renamed the First Mobile Fleet and now consisting of the Akagi, the Kaga, the Soryu and the Hiryu, with 272 aircraft. The transports were to be escorted by a light cruiser and thirteen

destroyers, and the light fleet carrier Zutho, with twenty-three aircraft. Any Albed warships which did not succumb to the Aleutian Support Force were to be brought to action and destroyed by the First Mobile Fleet and the main body of the Combined Fleet, consisting of three battleships, the light fleet carrier Hosho, thirteen destroyers, and two scaplane carriers laden with motor torpedo boats and midget submarines. Apart from a minesweeping force and a number of tankers, other ships the Japanese proposed to use included two lightly escorted scaplane carriers with twenty-eight scaplanes.

## Midway: the First Phase

This was an ambitious plan which might have worked if the Americans had not known what to expect. Aware, in the light of intercepted signals, of the threat to Midway Island, their naval Commander-in-Chief Admiral Nimitz assigned to the defence of the Aleutians only a small cruiser and destroyer force under Rear-Admiral Robert A. Theobald, This was supplemented by roughly 170 land-based aircraft. Believing that the information which pointed to landings in the western Aleutians might be spurious, and reluctant to uncover the approaches to the eastern Aleutians and Alaska.

Admiral Theobald moved too late to prevent the Japanese from seizing Attu and Kiska. The landing at Adak was countermanded as a result of developments elsewhere.

For the main battle Nimitz assembled a Carrier Striking Force under Admiral Eletcher. This was in two parts. Task Force 16, under Rear-Admiral Raymond A. Spruance, consisted of the Enterprise, the Hornet, six cruisers, and nine destroyers. Task Force 17, under Fletcher's direct command, comprised the Yorktown, two cruisers, and six destroyers. The American navalauthorities, fearing that repairs to the Shokaku might be completed in time for the battle and that she and the Zuikaku might take part in it, suggested that the British might lend Nimitz a carrier, but none was available. Nimitz did not, however, depend solely on the Carrier Striking Force, Nincteen submarines patrolled the approaches to Midway Island, and roughly 120 land-based aircraft or flying-boats were stationed there. About a dozen light naval craft and a reinforced battalion of marines completed the local defences.

Soon after 9 a.m. on 3 June, the crew of a flying-boat from Midway saw 700 miles due west of the island about a dozen ships which they took to be part of the enemy's main fleet. Land-based bombers attacked some of the ships later in the day, but scored no hits.

Fletcher, with all three American carriers, was 300 miles east-north-east of Midway when, late that afternoon, he received news of these events He judged in the light of the intelligence picture that the ships seen belonged to the invasion force and that Nagumo would approach from the north-west and launch an attack on the island at first light on 4 June. He therefore set a course which took him to a point about 200 miles due north of Midway by the time Nagumo reached his flying-off area some 200 miles west-south-west of him. The Japanese carriers were seen from a fand-based reconnaissance aircraft at 5 30 a m., and a few minutes later hostile aircraft were reported approaching the island. Thereupon Fletcher ordered Spruance to close with the enemy and attack him, adding that he would follow with the Yorktown as soon as her aircraft returned from a dawn reconnaissance.

Nagumo had in fact sent seventy-two bombers, escorted and supported by thirty-six fighters, to attack the island, keeping back ninety-three bombers armed with torpedoes and armour-piereing bombs to deal with any Allied warships that might be spotted from scaplanes despatched by his cruisers. Twenty-seven Buffalo and Wildcat fighters sent from Midway to intercept these aircraft, were outmatched by Nagumo's A6M2s and could not prevent the bombers from doing a great deal of damage to installations ashore

I and-based bombers then took off to attack the Japanese carriers. They scored no bits and suffered crippling losses, but their arrival convinced Nagumo that he had failed to knock out the defences of Midway and must strike again. He therefore gave orders that the aircraft which were standing by to deal with any hostile warships that might appear should be rearmed for an attack on objectives ashore. Less than a quarter of an hour later he learned that the crew of a scaplane from one of his cruisers had seen ten ships approaching from a point due north of the island. After some delay he cancelled the orders he had given and directed that B5N2s still armed with torpedoes should retain them

## Yamamoto's Carrier Fleet crippled

Meanwhile Spruance was closing with the enemy at the best speed he could make. He calculated that the most favourable time to faunch his aircraft would be 9 a m., when he would be less than a hundred miles from Nagumo's fleet. His Chief of Staff, Captain Miles Browning, persuaded him that he would stand a

better chance of catching the enemy at a disadvantage if he attacked earlier at the cost of giving his airmen a longer route to cover. Between 7 and 8 a.m., therefore, he flew off nearly all his dive-bombers and torpedo-bomb, keeping only a few dive-bombers and rather more than half his fighters to safeguard his fleet. Fletcher, following about two hours later, contributed roughly half the Yorktown's aircraft

The result was that Nagumo, who had learnt in the meantime that there was at least one carrier among the ships approaching him but did not know that there were three, was oblito give battle at a time when, having abandoned the idea of a second attack on Midway Island, he was in the midst of rearming and refuelling the aircraft which had returned from the attack already made. The Hornet's dive-bombers went astray. None of the American torpedo-bombers. scored any bits, and most of them were shot down. But they drew so much of the enemy's tire that dive-bombers from the Enterprise. followed by dive-bombers from the Yorktonn, had a relatively easy passage. By midday the Akagi, the Kaga, and the Sorya were blazing wrecks, abandoned by their crews. Dive-bombers and torpedo-hombers from the Hirra then put the Yorktown out of action, but later in the day the Hieyu was herself disabled by dive-bombers. from the Enterprise, supplemented by a few aircraft transferred from the Locktown before she had to be abandoned

Next morning the Hieyu, in turn, had to be sunk by her own side. Admiral Yamamoto then ordered a general retirement. He still hoped that, after refuelling, he might be able to lure the Enterprise and the Hornet within range of his guns or of land-based bombers from Wake Island, but the Americans refused the bait. On 7 June he turned for home

The loss of the Akagi, the Kaga, the Soryu, and the Hiryu was a blow from which the Japanese were never fully to recover. They still possessed an immensely powerful battlefleet Apart from the light fleet carriers Hotho, Ryujo, and Zuiho, they still had the Zuikaku, the Shokaku, and the Junyo, soon to be joi by the Junyo's sister-ship the Hiyo. Their BSN2 attack-bomber was still the best of borne torpedo-bomber in the world. To reassert their supremacy at sea before the Americans recovered from the loss of the Lexington and the Yorktown might seem a tare that ought not to have been beyond their power. The fact remains that, if a chance in the second their power. The fact remains that, if a chance in the second their power.

once more tipping the scales in their favour while time was still on their side existed, they failed to take it. Throughout the remaining three years of war they never regained the lead lost in one day off Midway Island

# New Guinea and Guadalcanal

In May 1942 the Japanese authorities set up a new Seventeenth Army to take charge of troops in the South-West Pacific and prepare plans for the capture of New Caledonia, Fiji, and Samoa. with an expedition to Port Moresby as the first step. The failure of their first attempt to reach. Port Moresby did not consince them that these projects were impractical, but they decided after the Battle of Midway Island to content themselves for the time being with preliminary. moves. Port Moresby was to be taken by an overland advance from Buna, on the north coast of the Papuan peninxula. A new Eighth Fleet and 25th Air Flotilla, with headquarters at Rabaul, were formed to assume command of units. already present and take up reinforcements as they arrived. The construction of airfields in the northern Solomons was to be speeded up, while in the British Solomon Islands Protectorate the scaplane base at Tulagi was to be supplemented by an airfield on the neighbouring island of Guadaleanal:

The first 2,000 of the 13,500 Japanese troops assigned to the capture of Port Moresby reached Buna on 21 July and began almost at once to advance along a jungle track which led by fairly easy stages to a point about lifty miles from the coast, and thence climbed over steep ridges and through deep valleys to a pass 7,000 feet above sea level. The main body did not arrive until the third week of August. In the meantime the Australians repelled an attack on their base at Milne Bay, at the south-eastern extremity of Papua, and the Americans gave a new slant to the war by themselves sending an expedition to Guadalcanal

Greatly overextimating the strength of the Japanese partison, the Americans disembarked a far larger force than they could hope to maintain without drawing on resources they were very reluctant to commit to the enterprise. To make matters worse, premature retirement of the carrier force which covered the landings led to the withdrawal of the transports before the

poted. Once the airheld began by the Japanese course of for exe the Americans sere able to exert. It is not sire of contributor the second in pproper a to Citadale in Ethiologhout the dishost foer but it might the adjacent waters were done itself by Lipine ear sers and de trovers from Rabii to He restoreement and proviously. It is he 10,000 normes printed to a facility betch be dot one of the wetter and most fewer-independent and nonerous task for the American at a time when they were triving to bodd up the note of strength and were a minimal to a Angles. Auch one See and Frend in North Africa.

From the point of year of the Western Albest the Guadaleanal compress did to wever there the mooned-for idvintage of occupying meet of the attention of the Eighth Fleet and the 28th Ar. I jointly to the detriment of the Jap mese free per in New Guinea, After a promitie start, the Swellcerd! Arms' ittempt to supply the Pert Mer in Exp ditionary Lorce long is by the annonaction be much in by three to a break d wit in the of Allied or attacks. Malnutrition, dysenters, and a variety of gastrici disorders killed off many of the freep. In the halftle 1 September Centrol is were halfed. the property is a doct of their objective. During their subsequent advance to Be withe Australians, joined by an Anarol of contingent. which moved partly by a rower, able to use aircraft to bring forward not and rations and ammunition but also brideing equipment and upp time un. By the end of the third week in I notes 1943, the whole of the Bunn treaween A calliants

B that date the Japane ellad naide up their in leto withdraw from Country train. The last of their troops left the land on "Tehr ary Inthe meantime the running of reinforcements and applied to Guada canal by both sides and r pear I attempts by the Japanese to knock out. the American irrield by bambing and naval-I inbardment led to a whole eries of naval-Fittle. The acost the Ail set e Hasp and the Hornet - x he ivy and two light criisers, and To attende trovers. I as Japanese jost the Ryujo, two Fattle hips, one light and two heavy crus era eleven destrevers, and six submarmes. Lesson's tardily learnt by the Japanese were that un irmorred aircraft without self-sealing fuel-Tira's were an easy pres for contemporary Allied lighters, and that the army is well as the navy. needed mere and better long-range aircraft.

How far the balance of power in the air had aifted since 1941 was shown when a series of raids by these and other aircraft in the first half of April yielded almost negligible results and institute Japanese such heavy losses that the 1 Carrier Squadron — diafterwards to be not home to reor. The and relit. The Allie ist only one destro — rone corvette, one tanker and two merchants.

· arcraft of the First Air Fleet and moved

the to to the South-West Pacific to reinforce the

twenty-five aircraft shot down

The naval authornies, misled by exaggerated claims made by their airmen, did not know how lew ships had been knocked out by the air attacks delivered on Yamamoto's orders in the birst half of April. When the new Commander-in-Chief of the Combined Fleet, Admiral M. Kogalearned in October that the Allies had invaded: flougainville, he repeated Yamamoto's mistake. by disembarking aircraft of the First Air Fleet. and sending them to Rabaul to help the Eleventh Air Fleet, Nearly three-quarters of them were lost within a week of their arrival, and in any case their absence meant that the carrier force was virtually immobilized in home waters until they returned or were replaced. Moreover, their presence at Rabaul did not prevent



American carrier forces from twice venturing within range of land-based aircraft for the purpose of striking at heavy cruisers also sent there. None of the cruisers was sunk, although six were hit. But without them, and without a carrier force, Koga was unable to take any effective action against United States forces which seized Makir and Tarawa in the Gilbert Islands between 20 and 26 November. The only apposition in the air came from land-based aircraft of the 22nd Air I lotilla, now stationed in the Marshall Islands and with its strength much depleted by the transfer of units to the South-West Pacific, By the end of 1943 Rabaul, which had formerly been the biggest Japanese hase in the whole Pacific, had been effectively neutralized and its garrison isolated

## Lae and Salamana lost

An attempt by the Eighth Area Army to reinforce Lae in the previous month was even more spectacularly unsuccessful. Light transports carrying 7,000 men and escorted by eight destroyers were sighted from Allied reconnaissance aircraft on I March, shadowed until after nightfall, and picked up again on the following day. In the Battle of the Bismarck Sea, bombers from bases in Papua sank all the transports and half the destroyers. Conversely, when Japanese torpedo-bombers attempted a night attack on an Allied convoy going in the opposite

10 (Above) Three versions of the Kawasaki Ki-60, an experimental forerunner of the highly successful Ki-61



tion, they were beaten off by anti-aircraft and not a ship was lost

After this bad beginning - followed by the

† down of G4M is carrying Yamamoto

† mbers of his staff as they were about to

nd at Bougainville - the failure of the Japanese

old Lae, Salamana, and the central Solomons
does not seem surprising. Some good new

ireraft, notably the Kawasaki Ki-61 armoured

were introduced in 1943, but in numbers

nall to turn the scale

I ards the end of the year the naval and y authorities came to the conclusion that they were still trying to do too much. They decided, in principle, to shorten their front by pulling it back to a line running from Timor tern New Guinea to the Caroline I and thence by way of the Mariana Islands to the Kuriles. The Marshall and Gilbert Islands, the northern Solomons, the Bomarck archipelago, and strategic points in New Guinea. east of the new line would be defended as outpost positions to gain time for a massive build-up in the Philippines, the Carolines, and the Marianas Fresh troops and air units were ordered forward from Japan and China, and once again new high-level formations were spliced into the chain. of command. The planned production of aircraft during the next twelve months was raised from 35,000 to 50,000, although in practice output fell some 20 per cent short of the lower figure.

# The Battle of the Philippine Sea

By the early part of 1944 there was general agreement in Japanese naval and military circles that Japan could hope to bring the war to a satisfactory conclusion only by winning a decisive battle and then seeking a negotiated peace. The naval authorities prepared for such a battle by concentrating the First Mobile Fleet in a central position, building up their strength in the air and moving as many land-based aircraft as possible to the Marianas, the Carolines, and the islands off north-western New Guinea

In February the Allies put themselves a step closer to the Marianas and the Carolines by scizing the Murshall Islands. In April and May they established themselves in strength in Dutch New Guinea. Admiral S. Toyoda, who had succeeded Koga in command of the Combined Fleet when a flying-boat with Koga aboard it disappeared without trace between Palau and Davao, could not tell whether the Allies would make their first attempt to break through the Timor-New Guinea-Marianas line in the Central or the South-West Pacific. In either case he intended to do everything he could to lure their carriers within reach of his land-based aircraft before striking at them with the carrier-borne aircraft of the First Mobile Fleet, By early May about \$50 land-based aircraft were deployed on a wide are from the Marianas to Halmabera. The First Mobile Heet had some 400 to 500 carrier-borne aircraft.

On 27 May Allied Forces in Dutch New Guinea invaded Biak Island off the north coast of New Guinea, 300 miles east of its western extremity. Toyoda, hitherto content that Biak should be defended only as an outpost position, saw that, if the expected naval battle took place in the triangle between New Guinea, the Carolines, and the Philippines, possession of the island's three airfields might enable the Allies to turn the tables on him by using land-based aircraft against his carriers. He sent more than a third of his land-based aircraft in the Marianas southwards to reinforce the 23rd Air Flotilla in Western New Guinea and Halmahera.

On 11 June carner-borne aircraft of the United States Fifth Fleet, under Admiral Spruance, began a series of devastating attacks on objectives in the Marianas. These reduced the number of undamaged land-based aircraft left there to fewer than a hundred.

11 (Overleaf) Kawasaki Ki-61 fighters attacked on the ground by US bombers at an airstrip in New Guinea, February 1944



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# The Battle of Leyte Gulf

The Battle of the Philippine Sea did not leave the Japanese entirely without a carrier force. They still had the Junio, the Zuikaku, nine light fleet carriers in various states of readiness, and two battleships – the Hyuga and the Ise – converted to carry E16A1 seaplanes intended for a dual role as reconnaissance aircraft and dive-bombers. The limiting factor was a shortage of pilots

The naval authorities decided that, if Allied invasion forces approached the Philippines or Formosa before the deficiency could be made good, battleship and cruiser forces should attack them off the beaches while the carrier force – with or without aircraft – did its best to lead the American Fast Carrier Force away from the scene of action. Land-based naval and military aircraft were to engage the enemy's carrier-borne aircraft but switch as soon as possible to attacks on the invasion forces

In August the Japanese naval and military authorities came independently to the conclusion that the next battle would be fought not in Formosa but in the Philippines. They agreed that the navy and the air forces of both services should attack the enemy whenever and wherever he tried to land, but that the troops in the Philippines should not be fully committed until Luzon was invaded

However, in the course of air attacks which preceded landings in the Philippine island of Levie, American carrier-borne aircraft struck at airfields in Formosa. The Japanese sent every available land-based aircraft to attack the enemy's warships, and Imperial General Headquarters published a communiqué in which they admitted the loss of 320 aircraft but claimed, on the strength of wildly inaccurate reports, that two American battleships and eleven carriers had been sunk. The mistake was soon discovered by the naval section of Imperial General Headquarters, but the army section was not informed. The result was that the military authorities, believing that the time had come for a decisive stroke, reversed their earlier decision and committed the troops in the Philippines to an all-out struggle for Leyte. This blunder made it doubly necessary for the Japanese that the naval battle should go well for them.

The essence of Admiral Toyoda's plan for the naval battle was that Ozawa's mobile fleet,

13 Two Mitsubishi G4M bombers and a Mitsubishi A6M fighter about to succumb to phosphorous bombs at an airfield near Rabaul consisting of the Zuikaku and three I ght fleet carriers with 106 aircraft between them, two converted battleships with no aircraft, and attendant light cruisers and destroyers should draw off the American Fast Carrier Force while a striking force of five battleships, ten heavy cruisers, two light cruisers, and fifteen destroyers made havoe of the enemy's invasion. plan by sinking his transports in Leyte Gulf. The striking force, commanded by Vice-Admiral T. Kurita and starting from Singapore, was to gain access to the waters east of Leyte by passing through the San Bernardino Strait, between Luzon and the island of Samar. immediately north-east of Leyte. Two smaller forces under Vice-Admirals S. Nishimura and K. Shima were to enter Leyte Gulf from the south by way of the Surigao Strait, between Leyte and Mindanao.

## Halsey's Mistake

By 17 October Toyoda knew that an Ailied invasion fleet was approaching Leyte Gulf. Kurita left Singapore on the following day, but had to interrupt his voyage to refuel at Bruner Bay, in Borneo, and detach Nishimura's force from the force under his direct command. Two American submarines sighted him early on 23 October, sank two of his heavy cruisers, and damaged a third cruiser so badly that she had to be sent back to Singapore for repairs. Aircraft from American carriers east of the Philippines attacked him repeatedly on the following day. Their crews claimed to have sunk many of his ships and damaged others. In fact only one ship, the battleship Musashi, was sunk. Four ships were damaged, only one of them seriously. After retiring to the west for a time to escape further attacks, Kurita resumed his course towards the San Bernardino Strait and passed through it that night with the greater part of his force intact. While Kurita was approaching the San Bernardino Strait, about 200 land-based aircraft from Luzon attacked the American carriers, and sixty-seven were destroyed. On the same day Ozawa, hitherto undetected and eager to advertise his presence, sent seventy-six of his carrier-borne aircraft on a similar mission. Some were shot down, and the rest landed in Luzon. Ozawa was thus left with only thirty aircraft.

Meanwhile Admiral C. F. Halsey, commanding the United States Third Fleet - which was, for all practical purposes, the Fifth Fleet under a different designation - received from the

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discomfiture of the Japanese in the day the Fast Carrier Force and all four of Orawa's carriers, one of his infect light cruisers, and two of his light destroyers. His two converted battleships were lamaged but not disabled. The Japanese Navs would never 1 ain be able to put to sea with a balanced force.

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In the light of these attacks, the United States

should be given to large-scale incendiary raids on urban areas. An attack on Tokyo, delivered by some 300 aircraft on the night of 9/10 March, destroyed more than a quarter of a million buildings and made a million people homeless.

Even though fourteen bombers failed to returned more than forty were damaged, the Japane were forced to admit that effective countermeasures to such raids as this were beyond

Even though fourteen bombers failed to return and more than forty were damaged, the Japanese were forced to admit that effective countermeasures to such raids as this were beyond their powers. Long before the first nuclear bomb fell at Hiroshima in August 1945, the Japanese Naval and Army Air Forces faced utter and irremediable defeat.

to be made on pero-engine factories, priority

a Mirror of A6M on the USS Missouri

# 4 The Designation of Japanese Navaland Military Aircraft

Throughout the Second World War, and for many years before it, the Japanese naval and military authorities employed different methods of designating the makes and types of aircraft used by their air forces. Moreover, each of them employed two parallel systems. The Western Allies added a further complication by applying names of their own to the makes and types they believed the Japanese to be using or to be about to use

# Japanese Naval Aircraft: Short Designations

The Japanese naval authorities adopted in the late 1920s the practice of bestowing on a projected aircraft, when the design reached the stage at which detailed drawings were submitted, a 'short designation' which became, as it were, the surname of every aircraft built to that design or to one closely related to it

A short designation consisted of

- I A letter, or combination of letters, which indicated the function of the aircraft, in accordance with the following code
- A & Carner-borne fighter
- 11 = Carrier-borne 'attack-bomber' (i.e., torpedo-bomber or dual-purpose bomber and torpedo-bomber)
- Reconnaissance aircraft with wheeled undercarnage
- D Carner-borne bomber or dive-bomber
  E Reconnaissance scaplane
- G
- G H Hymphon

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- J K
- L = Transport or communications aircraft
- M = Special scaplane
  MX = Special purpose aircraft, powered or

- 🦠 = Fighter scaplane
- P = Bomber (i.e., general purpose bomber)
- E Bomber (ne., general purpose
   = Patrol aircraft
- R Land-based reconnaissance aircraft
- S = Night-fighter
- 2 A number which served, in the context of (1), to identify the specification, or statement of operational requirements, which the design was intended to meet
- A letter, or combination of letters, identifying the firm or organization responsible for the design, or to which development of the project had been entrusted. Nearly twenty such letters or combinations were used to denote firms or organizations with which the naval authorities dealt at one time or another, but only the following are significant in the context of the war of 1941. 5
  - C Aich
- E = Kawanish.
- 1 Mitsubishi
- Sakajima
- Watanabe flater Kyushut
- Dai-Ichi Kaigan Koku Gijitsusho (Firal Naval Air Technical Arsenal) at Yokosuka

Where two or more versions of an aircraft were built to substantially the same design, they were distinguished by a number which was appended to the short designation and formed part of it. Minor changes to g , in armament or equipment) were indicated by a suffix.

For example, the short designation of the aircraft known to the Western Albes as Aif was F7K2. The E showed that the aircraft was a reconnaissance scaplane, the 7 that it was the seventh aircraft of its kind put in hand since the introduction of the system. The K showed that the design was sponsored by Kawanishi, the 2 that it had been substantially modified since the original version was built. Had the second version differed from the first only in its atmament or in some other minor respect, it would have been designated the E7K1a.

## Japanese Naval Aircraft: Official Designations

When a Japanese naval aircraft went into series production, or even into limited production for experimental purposes, it retained its short designation but received also an official designation. Until the summer of 1943 this consisted of a type number based on the year in which production was first authorized, a brief description of its function, and in appropriate cases a model number, sometimes retrospectively

bestowed. The official designation of the E7K2. for example, was Naval Type 94 Reconnaissance Seaplane Model 2 (later amended to Model 12). 'Type 94' meant that production of its forerunner, the E7K1, had been authorized in the Japanese year 2594 (i.e., in 1934). The meaning of 'Model 2' was obvious. However, soon after the E7K2 went into production the naval authorities adopted a new system by which every model number consisted of two digits, starting with Model 11. A subsequent version with substantially the same airframe as the first but a different engine became Model 12; a version with the same engine but a substantially modified airframe became Model 21. Where both airframe and engine were changed, the new version became Model 22. Since the E7K2 used an airframe almost identical with that of the E7K1 but was powered by a different engine, it was re-designated the Model 12 when the new system came into force.

### Popular Designations

A comment often made on the navy's official designations was that they were colourless, uninspiring, and needlessly informative. Journalists complained of the difficulty of making a good story out of a communique dealing with the exploits of such dull-sounding aircraft as Naval Type 99 Carrier-Bombers and Naval Type 2 Floatplane Fighters Staff officers disliked making the enemy a present of the knowledge that a particular aircraft had gone into production in a particular year. After nearly two years of war, the authorities deferred to these objections by substituting names of a more or less picturesque or emotive character for type numbers. Thus the Aichi E16A1, which would have been called Naval Type 3 Reconnaissance Scaplane under the old system, received the official designation Naval Reconnaissance Scaplane Auspicious Cloud. In general, names associated with meteorological phenomena of a fairly dramatic kind were used for day-fighters, names such as Moonlight and White Light for night-fighters. Bombers were named after celestral bodies or constellations. or were given names associated with mountains. Variations on the word 'cloud' were applied to reconnaissance aircraft; names of trees and plants to trainers. The Kyushu QIWI antisubmarine patrol aircraft was called Eastern Sea, and an abortive version of the Kyushu KIIW trainer intended for a similar role was to have been called South Sea.

## Japanese Military Aircraft: Kitai and Guraida Numbers

In 1932 the Japanese military authorities adopted the practice coassigning a Kitai curframe) number to every powered aircraft, but tor projected which oved its origin to a specification or statement of operational requirements issued by their int departicent. Even aircraft built be one 1932 tree yed. Kitai (Ki) inimpers at they were still in service or under development.

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After ift which did not like the rior gin to a specific itilin or statement of a parational requirements issued by the military of the rities received designations not related to the Katal series. Apart from a less transport after the lot foreign right by the derived active of the right by all of the army after the outbroker? It is those the only oriently in this category where or is for members in the context of the war of 1941–5 was the Kayaha Kail. This was an autogyro designed and bildt by KK Kayaha Seisakusho after scrut by of the wreek age of an imported autogyro which had or shed

Kitai numbers were shorted in numer ed sequence until 1944, when informes were introduced in the interest of security. I say pave no indication of the function of the interest of the interest concerned or the dentity of the firm of one in zation to possible for the design.

An arresalt recarred its Kitan number when at seal into production. Romain in interals appended to it were a cd to distinguish between different versions. More modifications, such as changes in arman and or equipment, were indicated by a saffix. A Karzo sombol (transisterated is KAL) denote farmular in a discrition of an existing version.

How the system worked is well shown by the example of an interact designed by Kawayaki to me to the demand that costed in 1940 for an all purpher batter powered by a hierace-built version of the Daomler-Benz DB 601A engine. The project was illotted the Kitan number Ki 61. After a dozen profit tope or preproduction interact had been built and tested, the design was incepted as the basis of a product on order for the Ki 61. If his was balt in two versions, the Ki 61. In with two 12.7-m. Imetre much ne-gans and either two 7.7-mill metre machiners in some or two 20-milli-



## the second of the second of ----A T A T A X 11 - the same of the sa - E / 1 F 1 () \$ · \_ \_ · · ·

## Japanese Military Aircraft: Official Designations

le type numbers

# Allied Code Names

During the first few months of the war of 1941
the Western Allies had great diriculty in identing and classifying Japan
nnowledge of the equipm

toch information about types and de as reached active theatres of war was found hard to assimilate. One might think that, once the existence of different naval systems was understood, such designations as

WMI - N I - been no more But the naval to the state of th ocabulary of Allied units in The state of the s c · . . . . designations. fine and a state of the A / Pacific Area, gave 1 1 1 1 1 1 1 1 1 1 1 1 1 . . . I inting task of known to the t to the he Nakajima 11. \*---explained the ome of them by Zeke and Rufe.

were not always

Nakajima Ki-44 Demon was called Toio, from the gof the Japanese Prime Minister and Minister of War, when it was first seen in China, and tallowed to stand. The Nakajima G5N2-I transport airer it was called Liz because, when it

\_\_\_\_

-

that the Japanese hoped to develop it as a long-

Continued to allot names used throughout the South-West Pacific and South Pacific Areas and Summer of 1944, when

19 A wrecked Kawasaki Ki-45 heavy fighter on Wake Island in western New Guinea

to nebility for code names was assumed by a ervice organization in the United States the the whole, the authorities succeeded in which were easily remembered bly appropriate, but there were The abbreviated first name Val. to the Aichi D3A dive-bomber, is to say fevidently feminine, and it - t that nine people out of ten the rather unusual Frances the Yokosuka PIY naval bomber e familiar boys' name Francis 11 - Japanese also developed a n of the PIY, perhaps the s intentional The Allies allotted the following code names real or supposed aircraft which, for the ns given, were not used by the Japanese (DAM Supposed Nakajima SKT-97 scaplane) Did not exec-SELLE Kawanishi H3K1 flying-boat. Obsolete d Nagova-Sento KI 001 fighter 14.4 kel He 111. Wrongly believed to be t under licence for the nass 1 Supposed Aichi Type 97 scaplane D d not eucl and Ni-28 Not accepted for \* r A8VI naval fighter, Imported by 1941 utt Me (Bf) 110 Wrongly ed to be in service with Japanese LAIT Force ed Mitsubidu B 97 bomber Did " he had name for Nakajima Ki 48, at one me erroneously applied to non-ensient 11 tsubodu TK 4 fighter FRED Version of Focke-Wulf Ew-190, wrongly seneved to be in service with Japanese. Miny Air Force Supposed Nakajima AT 27 fighter. Did. GrU5

HANK Aichi E10A reconnaissance seaplane. Obsolete by 1941. HARRY Non-existent Mitsubishi TK-4 fighter, also called Frank IONE Supposed Aichi Al-104 seaplane, Did not cust IRENE Junkers Ju 87A. Wrongly believed to be in service with Japanese Army Air Force. JANICE Junkers Ju 88A-5. Wrongly believed to be in service with Japanese Army Air Ji RRY Heinkel He 112B-0, Imported aircraft. obsolete by 1941. Supposed TK-19 fighter. Did not exist. 20Yel Supposed bomber version of Tachikawa trainer and communications aircraft. Did not exist. JULIAN Supposed Type 97 heavy bomber, afterwards found to be Ki-48 light JI NE Supposed seaplane version of Aichi D3A, afterwards found to be Aight FI3A1 reconnaissance scaplane. Mitsubishi Ki-2 light homber. Obsolete. by 1941. 100151 Messerschmitt Me (Bf) 109E, Wrongly MIKE believed to be in service with Japanese Army Air Force MILL B. Vultee V-HGB. Wrongly believed to be built by Showa Hikoki KK for navy. NORMA Supposed Type 97 light bomber afterwards found to be Mitsubishi Ki-15 reconnaissance aircraft. OMAR Supposed Suzukare 20 fighter, Did not RAY Supposed Mitsubishi Type I fighter afterwards found to be Mitsubishi A6M HI THE Trut IIR 20, Imported aircraft no longer in service in [94] Watanabe E9W reconnaissance scaplane. SEIM : Obsolete by 1941 TRINIE Junkers Ju 52,3m, Wrongly believed to be in service with Japanese Army Air

Duplicate names for aircraft which the Japanese did use, where they are known to the author, are given in the reference section

to be used by navy

TRUDY Tocke-Wulf I w 200, Wrongly believed





Anni tos from p.s. Aicht chouse from the fire Kawanishi Kokuki KK **Lawanishi** Rawasaki Kokuki Komo Kli Kanasaki N.K. Kayana Semakumu Kayaba. Nippon Kohman hoku Koma 1 x Kokussi KK V Kyushu. k circle of the ki fall Mitsabithi Jukowyo KE Mitsubishi Se anima H k iki KE Nobel Ped Kinngan bushahiyana b. b. Rawingson Tachikawa Hikoki Kl [ pchikawa Da Johi Ka gon Koku ti Yokosuka 4 Baker Hugzeughau OmbH Bucker Dong as Aits raff f Douglas 100 Lockherd. Messerschmitt Basersche Elistzeigwert 11 North America: 1

1 1 1 1 1 1 I for the Lip, nese Army Air F /

The second secon The second secon , , , ,

fuction For example, the Aichi B7A Sicht D1A2, although the B7A2 did in the Juction until 1944 and the D1A . . .

Where a firm was responsible for m to 4 described is determined by the number that follows the initial letter. Thus the Aichi E13A1 precedes the Aichi F16A1, the Mitsubishi G3M the Mitsubishi G4M.

The army aircraft designed or developed by a given firm or organization are described in the inder of their Kitai (Ki) numbers or, in the ca-I glidery, their Ku h lor casy referen i separate L. of such numbers, keved to the names of him - 1 - readifutions, 1 - cn on the opposite p

The tecl all data are based on what is believed. to be the bot information available. Where speeds, range and service ceilin are concerned it should, however he have in the co-

1, 1 1 1 r - -. . . \*\* 1 \*\* 1 the state of the s the state of the s and the r ' 11, t a Japanese , r c t c . . . . ram bomb

e size and The second secon 

15,5

## Kitai Numbers

I to reratt described - thelow Official ted form, in I n shows the 1, 15 1, s or to aircraft. ntext of the war of

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A. 12	h
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K 2 1 Bomber M	tsuhis
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	iwasaki

	Ki 71	Ki-71 Experimental Tac, R	FACISEAME
	Ks 74	Aircraft Experimental High-Altitude	Mitsubishi
		LRB K1-74	Tachikawa
	Ki 76 Ki 77	Type 3 Cmd Liaison Aircraft Experimental LR Research	Koleusai
		Aircraft	Tachikawa
	K1-84	Type 4 highter	Nakajima
	K1-86	See Appendix: Bucker Bu-131 Experimental Lighter and	
a	4	Gd Attack Aircraft	Rikugun
1	Ki=100 Ki=102	Type 5 Lighter Type 4 Assault Aircraft Experimental High-Altitude	Kawasaki
		Experimental Night-Fighter	Kawasaki
	KI-105	Experimental Transport Aircraft	Kokusai
	Ki-109	Ki 109 Interceptor	Mitsubishi

Type 100 Transport Aircraft.

Experimental Cmd Recce Aircraft Tachikawa

Type 1 Transport Aircraft

Type 4 Heavy Bomber

Type 3 Fighter

hr 61

Ki 67

Mitsubishi

Kokusai .

Kawasaki

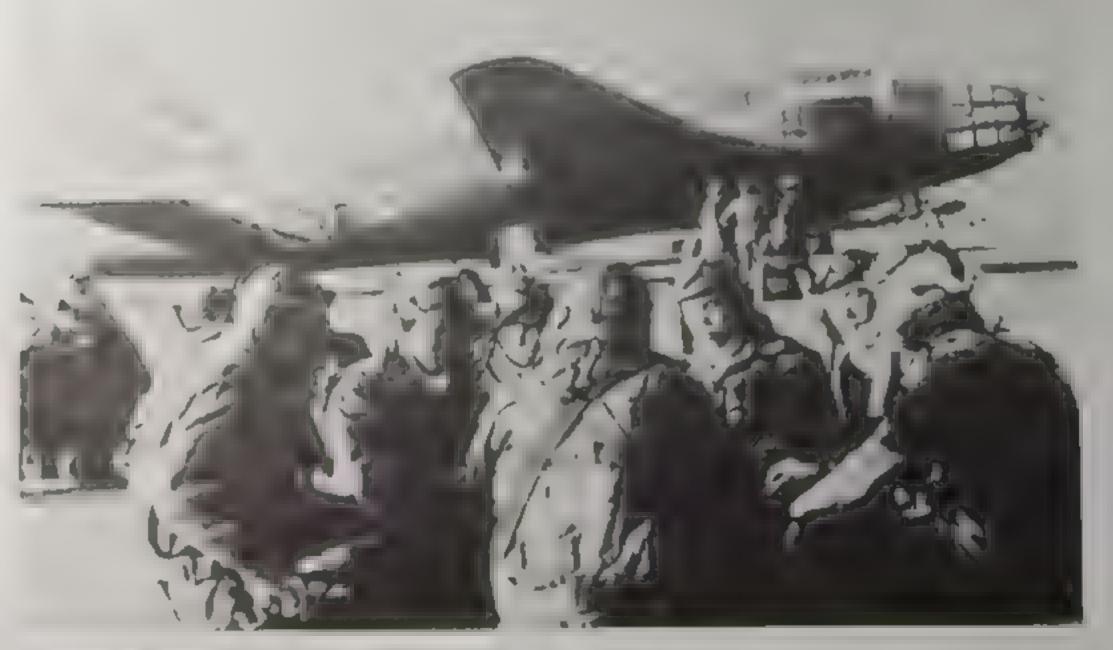
Mitsubishi

# Guraida Numbers

Ku-7	I sperimental Transport Glider	
	Crane	Kolcusar
Ku-B	Type 4 Large Transport Glider	Koleisai

# Special Designations

Model I Observation Autogyro - Kayaba See Appendix Lockheed 14-WG3



GST/ - two, twitter with Ohka attached and crew the state of



# Aichi Aircraft

## Aichi B7A2 Shooting Star

V C - - - rec Attack-Official design Homber Shooting Star Madade in (france Manufacturery Aichi Kokuki KK Dai-Nijaichi Kaigan Kokusho inverted guil-wing mid-wing Description ted to operate rs in dual role as - to-bomber Homare 12 1000 . Spenie 12 -- 11 I females -, , t Witness of the contract of Wellings 1 2 1 1 Weekly onded > 12 11 11 CENT ( 1,500 (t) More area d Crist, Said Not known St ura 1 - Iles 1 '=0 nautical miles Service ceiling 11,250 m (37,000 ft) Bomb-load Normally, two 250-kg bombs or pedo, but up to 800 kg | be carried. I wo wing-mounted, forward-firing Semi-ment. . I I / 11 fel 2 cannon; llearbly mounted, rearward-

Ozaki, Morishige Mori and Yasushiro Ozawa

Lovaki, Morishiro Mori and Yasushiro Ozawa

Lovaki, Morishiro Mori and Yasushiro Ozawa

Lovaki, Mori and Yasushiro Mori and Yasushiro Ozawa

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Lovaki, Mori and Yasushiro Mori and Yasushiro Ozawa

Lovaki, Mori and Yasushiro Mori and Yasushiro Oza

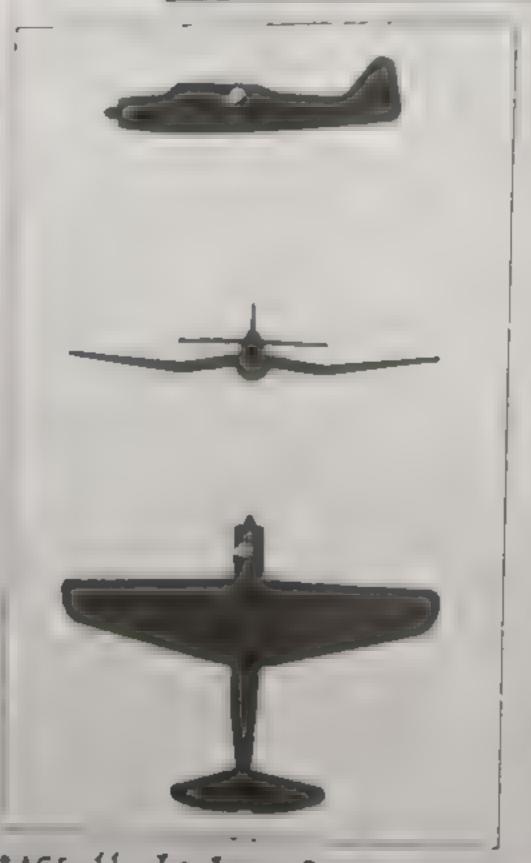
12-mm Type I or 11-mm

The almost untried Nakajima eighteen-cylinder Homare engine, on which the naval authorities insisted, proved troublesome, but eventually its imperfections were overcome. No less than nine prototype or pre-production versions of the Rymer, all bearing the designation B7A1, were built and tested before, in the early summer of 1944, the B7A2 went into production. Unlike its forcrunners, which used the 1,800-horse-power Homare II, it was powered by the 2,000-horse-power Homaro 12. Some 80 B7A2s were built by Aichl, another 25 at the 21st Naval Air Arsenal (Dai-Nijurchi Kaigun) Kokusho) at Omura. Too large to be accommodated in fleet carriers of the Akagi or the Shokaku class, they were intended for a new generation of carriers capable of handling arreraft whose length exceeded the limit of 11 metres previously imposed. In the outcome, those ready for service by the end of the war were allotted to land-based units. A version powered by the Homare 23 engine, to be called the B7A3, was projected, but apart from installing one of these engines in a B7A2 Aichi made no progress: with the venture.

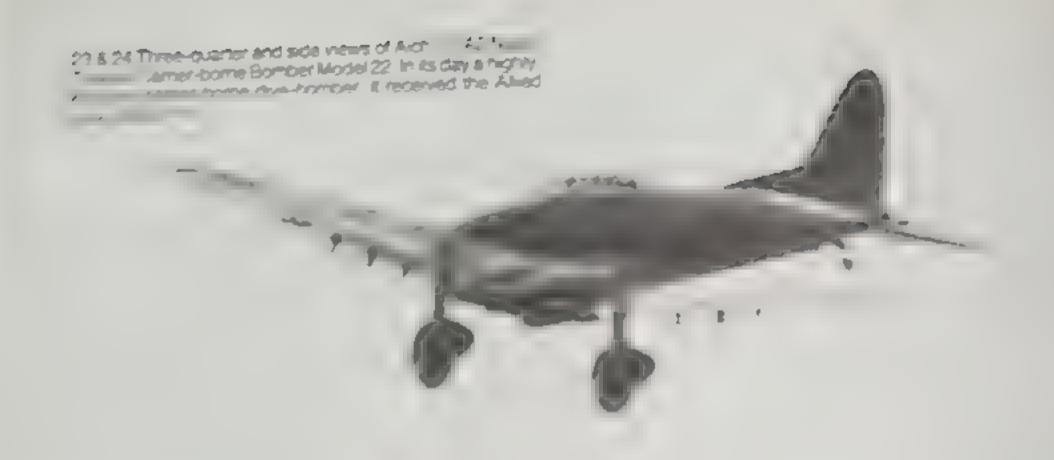
## Aichi D1A2

Naval Type 96 Carrier-Bomber Official des. Allied code name. Susic. Manufacturer Aicht Tokei Denki KK Description Two-seater biplane dive-homber with fixed spatted undercarriage Engine 730-h p. Nakajima Hikari I nircooled radial. 11:4 m (37 ft 5 in) Span 9 3 m (30 ft 6 in) Length Height 3:41 m (11 ft 2 in) 34 7 sq m (374 sq ft)

of 167 knots, the D1A2 was an improved version of the slower but very similar D1A1, which in turn was derived from the Heinkel He 66. D1A2s took part in the attack on shipping in the Yangtze River on 12 December 1937, which led to the sinking of the U.S. gunboat *Panay* and damage to the British gunboat *Ladybird*. They were in production from 1936 to 1940. Some sixty or seventy were still on the strength of naval establishments when Japan went to war with the Western Powers in 1941, but they were no longer employed by first-line units.



GRACE II TO JIMA 9 MAR. 45. RESTR. JICPOA NEG 50311-3.



## Aichi D3A1 and D3A2

DJA1 Naval Type 99 Car Official des. the state of the s

Allied crede name

Ash Tata De vi KE Manufacturers

Andrek Frankl

H LULI ROZIO I F

Description

and a so at land

serve are pure amountered an organic I mging DJA1 1 000-h p. Mitsubishi k

Hor I II bab p M trabada Kit

THE PARTY PROPERTY.

and minimum transfer and the

Span 14 365 m (47 ft = 101)

Length 10 195 m (33 ft 5 in) Height 3 847 m (82 ft 7 m):

Wang area 34-9 sq m (376 sq ft) Weight empty D1A1 2,400 kg (5 300 f6)

D3A2 2,570 kg (5,666 lb)

Weight iduded DIAL 1650 (8 047 lb) DJA2 J works of 478 fb)

Crew Two

Maximum speed D3A1 219 knots at 3 000 m.

dono for

DJA2 232 knots at 6 fr ft m

(20 time to a

Criming speed Range

160 knots at 3,000 m (10,000 ft) DJA1, 800 nautical miles

D3A2 730 nautical miles:

WETTER CTI .

One 250-kg bomb under fuselage. Bomb-load

4.3

Vitta ment

1,300-h p. Matsubashi K

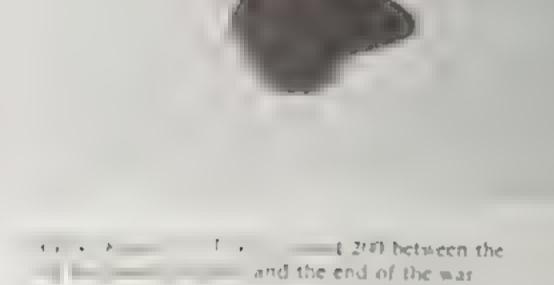
the new year expension recommendation of 1942. D3A1s serving with Admiral Nagumo's Striking Force were extremely soccessful at Pearl H and they after all afted themselves well when Nagumo took his carriers into the Indian Ocean in-

1 result of losses irrier force in the battles of the Edway Isrand, bombers intended for

service at sea were relegated in increasing

numbers to land-hased units

The D3A2, similar in appearance to the D3A1 but with a spinner in front of the airscrew and a slightly different canopy over the rear cockent, made its first flight in June 1942 and was in production by the end of August. Aichi completed about \$40. D3A2s in the course of the next two years; 5howa



, wn during the Alaed - 1944 Both D3A14 in the later stages e of the Philippine portion of these were sacraticed

Crew Cruising speed Range Service ceiling

Armament.

Homb-load

Three Maximum speed 203 knots at 2,200 m (7,200 ft). 120 knots at 2,000 m (6,500 ft) 1,200 nautical miles 8,700 m (28,000 ft)

One 250-kg bomb, or four 60-kg bombs or depth charges. One flexibly mounted, rearward bring 7.7-mm. Type 92 machinegun, supplemented in some late. models by one flexibly mounted, downward firing 20-mm. Type 99

cannon

in the summer of 1937 the Japanese naval authorities invited Aichi, Kawanishi and Nakajima tosubmit proposals for a two-seater floatplane to succeed the Kawanishi F7K1 biplane of 1933. Later they issued a specification calling, in addition, for a three-scater. Aichi, unlike Kawanishi and Nakajima, built prototypes to meet both specifications; but eventually both they and the naval authorities came

to the conclusion that a three-scater was what the navy needed. By the time their prototype E13A1 was ready an improved version of the £7K, the £7K2, was in production. However, towards the end of 1940 the authorities, after feiting the £13A1 in competition with two prototypes submitted by Kawanishi, accepted it as the basis of a production. model. The outcome was a highly successful aircraft. which overlapped the £7K2 and, with only minor modifications, remained in service throughout the war. Aichi built about 130 E13Als before they were ordered, in 1942, to devote their productive effort to dive-hombers. KK Watanabe Tekkosho, reorganized in 1943 as Kyushu Hikoki ls K, then took over the manufacture of the aircraft, producing about 1,200

by the end of the war. In addition, some fifty were

## Aichi E13A1, A1a and A1b

Manufacturers

Description

Span

Official des waval Type O Reconplane Model 1

HIAIa: Naval Type O Reconsussance Scaplane Model 11A EBAID: Naval Type O Recon-

missance Scaplane Model IIII. Allied code name Table 1

> Aichi Tokei Denki KK KK Watimahe Tekkosho Kyushu Hikoki KK (from 1943)

Dai Juichi Kaigun Kokutho Hoatpiane of low-wing monoplane implyuration designed for recon-

ince, armed reconnaissance, strikes and excert missions from cruisers, scaplane tenders and permanent or improvised scaplane.

Engine 1,060-b p. Mitsubishi Kinsei air-

unoled tad al-14.5 m (47 ft 7 in)

Attigth. 11.3 m (37.ft 1 in) Height 7.4 m (24 ft 3 in) Wing area 36 sq m (3x8 sq ft) Weight empty 2,642 kg (5,825 lb) Weight leaded 3,640 kg (8,025 lb)

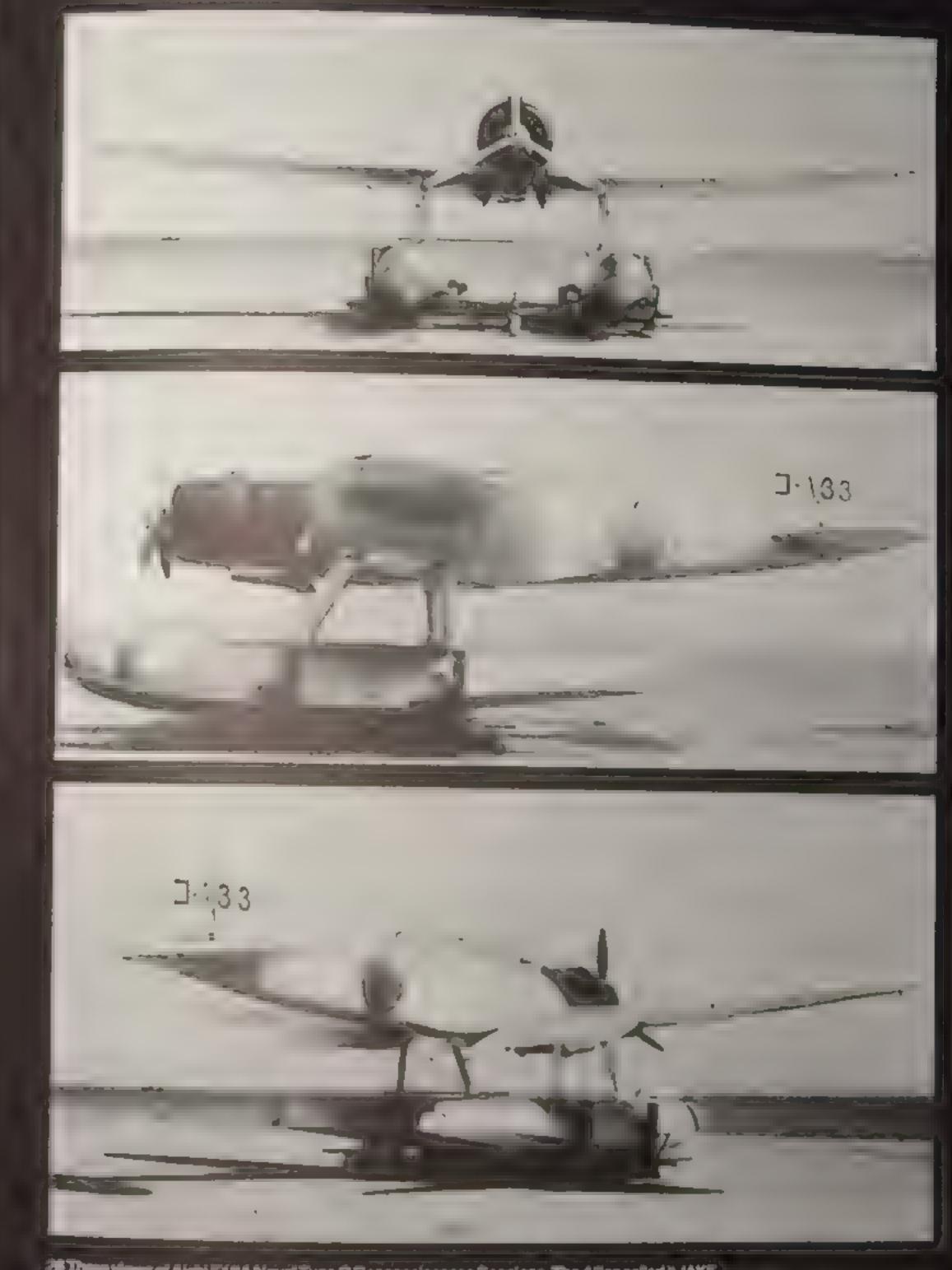


## Aichi E16A1 Auspicious Cloud

Official des	5 b 5 c
A feed coor range	\ \\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\
Description	1
	· · · · · · · · · · · · · · · · · · ·
1 Jugume	, , M , , k , , , , , , , , , , , , , ,
Span Length	1 - 2 · 1
Height Wint area	* * * * * * * * * * * * * * * * * * * *
Weight loaded from	** * * * * * * * * * * * * * * * * * *

			_	_		=
Maximum speed	217 knots at	5.50	11) m	(15	l no	
Causing speed	180 knots at					
Range	`					
	-1					
berytee ceiling	The Wa	4.0				
Somb-local	Y-1					
Vernament						
	*	1		15	5 1	
					Çw.	1

1 ( ) r ter r Kishiro Matsuo and Yasushiro Ozawa of A ter continues of her first THEF I .. I MAY NO THE HEALT. The trailer of the color and recessing from a total test of the at the Ar improved set of the Election F. 71 1 11 11 Pr. 1 x x 11 1 17 1.7 the process than the search led. It was powered be a little of the hour to are led radia 0 1 1 4



28 Three views of Aichi E194 Nevel Type O Reconscissance Sespiere. The Alies called it JAKE



## Aichi H9A1

Official des	S. Test B
CALLY CO.	2,4
Affred ende name	Name of the last o
Manufacturers	A
	76 FE 6 7 5 h
Description	F
	A STATE OF THE PARTY OF THE PAR
Logiacs	1 2 2 2 4
	\$ - e 1 · e
Span	
Length	+ + + + + + + + + + + + + + + + + + +
Height	* * * * * * * * * * * * * * * * * * * *
Witness agent	

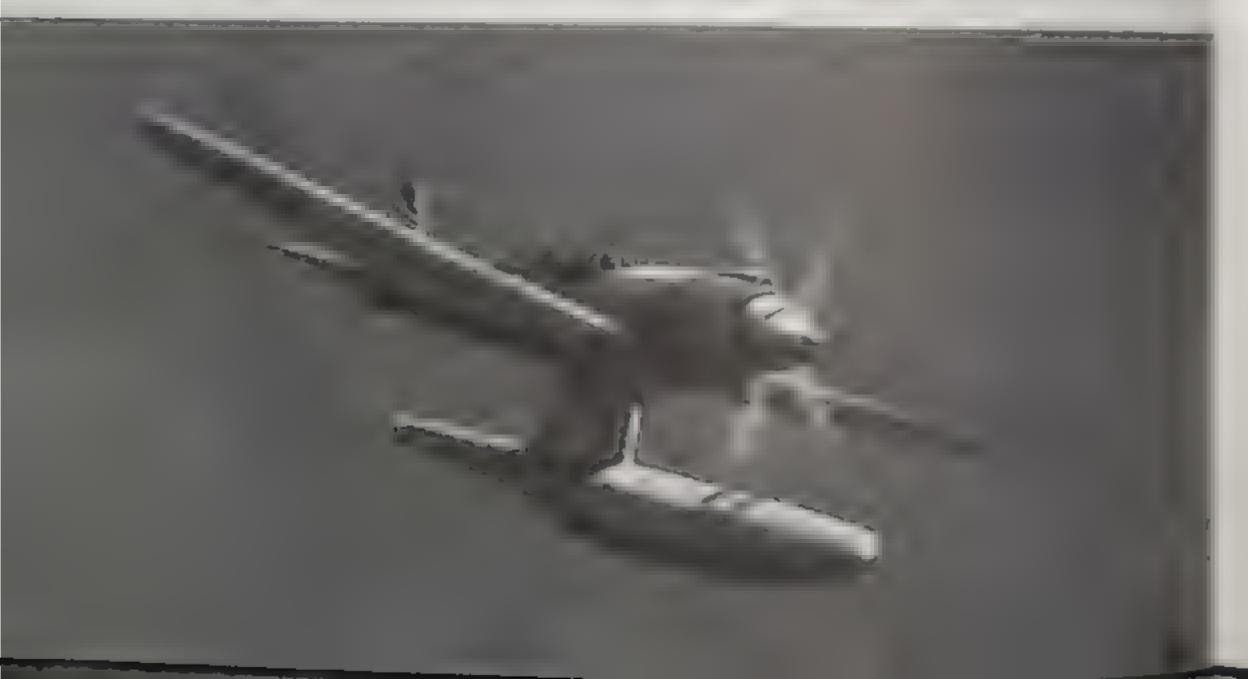
Desired and built for the express purpose of side an ad need trainer for naval airmoerting to 1 Kawanishi HRKL, the Aichi H9A1 d a maximum spend of 171 knots and coucommodate three pulls in addition to a five-maccrew. Three prototypes and I ntv four aircraft. the production series were completed to the between 1940 and 1943, four production aircraft by Support Hikoki in 1944. The H9A1 was i limited extent in an operational role for off reconnaissance in home waters, but it was not seen by A lied airmen and its existence is said to ----been unknown to the Albey until the end of the war-

## Kawanishi Aircraft

## Kawanishi E7K2

Official des.	Naval Type 94 Reconnaissance S
Allied code name	1 / C
Manufacturers	E FIKK
Description	plane of biplane ed for recon- irmed reconnais- ruisers and scaplane  vo) escort and patrols
Engine	87t Mitsubishi Zuisei II air-
Span	11
Len, th	1 (34 ft 5 in)
Height	¥ 85 (15 ft 10 in)
Wing area	43 6 sq m (469 sq (t)
Weight empty	2,100 kg (4,630 fb)
Weight loaded	3 300 kg (7 275 lb)
Crew	Three
Maximum speed	149 knots at 2,000 m (6,500 fn
Cruising speed Range	1,200 nautical miles

7,000 m (23,000 ft)



Service ceiling

Bomb-load Armament

Two 60-kg or four 30-kg bombs One forward-firing, one rearwardtiring and one downward-firing 7 7-mm. Type 1/2 machine-gun

The ETK2, developed Ir in the E7K1 designed by n in 1932 and 1933, made its first flight in form in 1938. About 300 of these aircraft. , , b k ind Nippon Hikoki KK ta way No. 1 1 year and 1941. Although a, they were manup, for the sch liked by r crews. The E7K2 was \_\_\_\_\_ the first of the war to econnaissance, y escort, and later for ■ • nt other ' → including training

## Kawanishi E15K1 Violet Cloud

Otheral des	Naval High-Speed Reconnaissance Scaplane Violet Cloud Model 11
Allied code name	No.
Manufacturer	Kawamishi kokuki KK
Description	1 t-performance
,	s saplane with
	ral float and
	single engine driving a pair of
	contra-rotating airscrews
Engine	1,500-h p. Mitsubishi Kasel 14 or
	1,850-b p. Mitsubishi Kasei 24 air-
	cooled radial driving two contra-
	the state of the s
Span	14 m (45 ft 11 in)
Length	11.587 m (38 ft)
Height	4 95 m (16 ft 3 in)
Wing area	30 sq m (323 sq ft)
Weight empty	3,165 kg (6,978 lb)
Weight loaded	4,100 kg (9,039 lb)
Crew	Two
Maximum speed	253 knots at 5,700 m (18,700 ft)
Craising speed	160 knots at 2,500 m (8,200 ft)
Range	1,820 nautical miles
Service ceiling	9,830 m (32,250 ft)
Bomb-load	Two 60-kg bombs
Armament	One flexibly mounted, rearward-
	fiting 7.7-mm. Type 92 machine-
	AUD.

The Kawanishi Shlun, or Violet Cloud, was Kawanishi's response to a specification of 1939 which called for a reconnaissance scaplane capable of outperforming contemporary British and American

land-based fighters. By using an exceptionally powerful engine to drive two contra-rotating airscrews, the firm managed to produce an aircraft which was extremely fast for a two-seater floatplane, but even so was considerably slower in normal trimthan such land-based rivals as the Hawker Hurricane and the Supermanne Spitfire. In an emergency the crew could, however, gain an additional 50 knots by jettisoning the large central float. Two stabilizing floats near the wingtips, normally extended before. touchdown, had then to be kept retracted to enable the aircraft to alight safely. Although this arrangement gave rise to endless trouble, production was begun in 1943, after six prototypes or experimental aircraft. had been built. Nine aircraft of the production. series were completed, and six were sent to the cruiser Oyodo to be tried out on active service. They were soon shot down by Allied fighters because on each occasion the jettisoning system failed to work. Production was discontinued early in 1944

## Kawanishi 116K2, 116K4 and 116K5

wanamsiii 110	110K4 800 110K2
Official des	H6K2 Naval Type 97 Flying-Boa Model 11 H6K4: Naval Type 97 Flying-Boa Model 22
	H6K5: Naval Type 97 Flying-Boa
Allied code name	Model 23 Mayes
Manufacturer	Kawanishi Kokuki KK
Description	Large flying-boat of parasol-wing monoplane configuration intended primarily for long-range maritime reconnaissance but adaptable for other tasks
langines	H6K2: Four 1,000-h.p. Mitsubish. Kinsei 43 air-cooled radials H6K4: Four 1,000-h.p. Mitsubishi Kinsei 43 or four 1,070-h.p. Mitsubishi Kinsei 46 air-cooled radials H6K5: Four 1,300-h p. Mitsubishi Kinsei 51 or 53 air-cooled radials
Span	40 m (131 ft 3 in)
Length	25-625 m (84 ft 1 in)
Height	6:27 m (20 ft 7 in)
Wing area	170 sq m (1,830 sq ft)
Weight empty	H6K2: 10,340 kg (22,796 lb)
	H6K4: 11,707 kg (25,810 lb) H6K5: 12,380 kg (27,117 lb)

Hoh 16 to 1 kg (35,274 lb) Weight loaded Heks 1714cm, 74791bi H6K5, 17,500 kg (38,581 lb) Nine Crew H6k2 179 knots at 2,100 m Maximum speed A SECURIT He&4: 186 knots at 4,000 n d3 (0) fit Hr K 51 200 knots at 6,000 n 20.04 Hrk + ( rossing spred H6K4 120 knots at 4 000 r

113 00 0 ft) H/ K.5 - 140 knots at 4 000 m (13 00)

Res

from an 3 283 nautical miles

H6k.5 2 667 nautical mile (normal): 3 656 nautical mile

Holk 2 7,600 m (25 000 ft)

Holk 4 and 5, 9,600 m (31,500 ft)

Homb-load Two 800-kg torpedoes, or up to
1,000 kilograms of bomb
Holk 2 7,600 m (25 000 ft)

Two 800-kg torpedoes, or up to
1,000 kilograms of bomb
Holk 2 One 7-7-mm. Type 92

H6K2: One 7:7-mm. Type 92 machine-girn in the bow, one in a power-operated dorsal turret in the tair. H6K4 and 5, Two 7.7-mm, Type

H6k4 and 5. Two 7.7-mm. Type 92 machine-guns in forward and dorsal positions, two in 'blisters to port and starboard, one 20-mn. Type 99 Model 1 cannon aft

The Hole was designed by Yoshio Hashiguchi, in: essociation with Shizuo Kikahura and others, after a visit to Short Brothers by members of Kawanishi's staff. The prototype, powered by four 840-h.p. Nakajima engines, made its first flight in the summer of 1936. Production of the H6K2 began early in 1938, after four pre-production aircraft of the H6K1 series had been built. Three of these, including the prototype tested in 1936, were then fitted with Littleh p engines and commissioned as naval afteraft. Only ten H6K2s were completed, making a total of theteen with the three updated K1s. These were followed by 127 H6K4s and 36 H6K5s built between 1939 and 1942. The total of 176 does not include aircraft of the H6K class intended from the outset to serve as passenger, service transport

aircrast. Long-range maintime
the primary function of H6Ks
but in the first few months

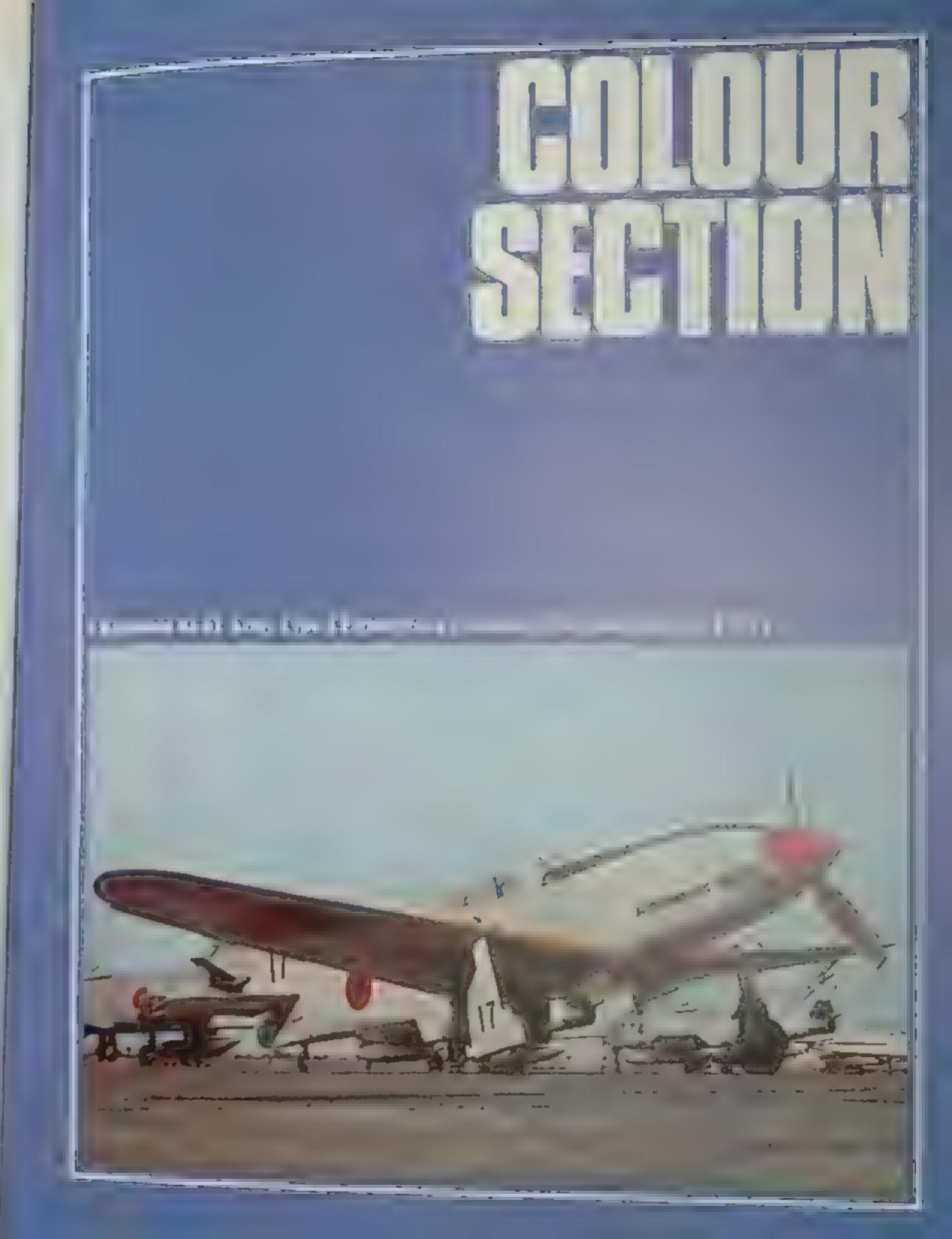
## Kawanishi H6K2-L and H6K4-L

2 L: Naval Type 97 Transport Official des. Flying-Boat H6K2 1 4 L. Naval Type 97 Transport Flying-Boat H6k4-1 Allied code name 1 Manufacturer Description 1 ----Fingines: 1 . `\pan Length 1 2 Height. ..... 1 ..... k Wing area ----Weight empty Weight loaded Crew Tight Maximum speed 180 knots at 2,600 m (8,500 ft) Cruising speed 130 knots at 1,000 m (3,300 ft) Normal range 2,137 nautical mile None Accommodation for up to 18 Homb-land

In 1939 Kawanishi modified two H6K2s as expenmental transport aircraft for naval or civilian use. Thereafter they built strucen H6K2. Ls and twenty H6K4-Ls with accommodation for up to eighteen passengers as well as mail and cargo. In addition, two reconnaissance aircraft of the H6K4 series were converted to the transport specification. Of these thirty-eight aircraft, twenty were used by the navy for staff transport and eighteen allotted to Dai Nippon Koku KK (Greater Japan Airlines) for use on the routes linking Yokohama with Saigon, Bangkok, Timor, and the Caroline Islands

None

Armament





If The open to the Allies as /FKF

III Mit ob. hi 12M3 Naval Interceptor Eighter Raiden (Thunderholti, 15% VIII decode name was IACK





Code rome GEORGI







IX Nakajima Ki-43-H Arms I . . . ! as OSCAR, it made a power! I i i

on them when it first appeared over South-East Asia







NI Wreckage of an X6M Renen (Zero highter) forced down on Melville Island (due northlaring the attack on Darwin by carrier-borne aircraft on 19 February 1942

MU No Ma Zero Fighter now in the Tokyo Science Museum





Natajima B5N2
torpedo-bombers and Aichi
D3A1 dive-bombers,
escorted and covered by
Mitsubishi A6M2 (Zero)
fighters, on battleships and
wirfields at and near Pearl
Harling, A still taken during
the filming of the
Japanese-American film
Toral Tora! Tora!



NVII Drawing of a Nakajima B5N2 torpedo-homber (KATE) attacking U.S. warships in 'Battleship Row', Pearl Harbor.









### Kawanishi H8K1 and H8K2

Picial des	HARL Naval Type 2 Flying B
	K2 Naval Type 2 I lying Boat
V 10	1.000
1 Biret	Kawanishi Kokiki KK
Description	Large regn worg monopoise
	KT Four I,556th p. Mitsubishi Kaser 12 air-cooled
	Kaser 12 air-cooled
	Kaser 12 air-cooled p. Mitsubishi

P-00-1					
h		28 T1 in (92.1)	4 (0)		
1		9-15 m (3010)			
****				1	
	4	,	* 100	1176	ibi
			,	- 1	[b]
h.					
la timum	speed	H8KT, 234 ki	nots at	1.5,00	a in

HUNG 252 knots at 5,000 m

6,500 III Cr. post 160 knots at 4 000 m (13,000 ft) \*1 o cr. p. H8K1 3,000 nautical miles

Nervice ceiling H8KT, 7,600 m (25,000 ft) H8KT, 8 800 m (29,000 ft)

Hombstead Two 800 kg torpedoes or eight bombs, alternatively 60-kg bombs or depth

Armament

H8K1: Two 20-mm. Type 99
Model I cannon and four or five
7-mm. Type 92 machine-guns in
torward, dorsal, ventral, beam
and tail positions
H8K2. I ive 20-mm. Type 99
Model I cannon and five 7.7-mm
Type 92 machine-guns in forward,
dorsal ventral, beam, and tail
positions

The Kawanishi H8K was designed to meet a specification of 1906 which called for a large

ing boat, superior in performance to the Short Sunderland, as a follow-up to the H6K. The prototype way completed at the end of 1940 and first lew in January 1941, Many modifications were made, and two pre-production models were built, before the naval authorities sanctioned series production. Kawanishi built fourteen H8K1s, in addition to the pre-production models, before switching in 1943 to the ID(k2) This was substantially the same aircraft. as the H8K1 so far as its airframe was concerned, but its four Kasei 22 engines enabled the manufacturers to achieve a higher maximum speed and provide a more powerful defensive armament vithout making any significant sacrifice of range Well over a hundred 118K2s were completed between 1943 and 1945. Unlike most Japanese aircraft, the H8K was well armoured, and its fuel tanks were to some extent self-scaling. Powerfully armed and exceptionally fast for an aircraft of its type, the H8K2 had the reputation of being extremely hard to shoot down

# Kawanishi H8K2-L Clear Sky

Official des. Naval Type I To Albert code name
Manufacturer

Lagraces

13 m (124 ft 8 in) Span 28 13 m (92 ft 4 n Length 9 15 m (30 ft) Height. 160 sp m (1,722 sq th) Wing nerse: 16 900 kg (3 Weight empty 7383 Ear (58 826 lb) Weight Jouded Czen 4 000 m (13 000 ft) Maximum speed 160 km = 1:4 0:0 m ({3 1:0 ft) Cruising speed Maximum range 2 400 nautical mile

Service ceiling

(Somb-load

None Accommodation for up 1

travelling in

Armament One 13-mm. Type 2 machine-gun

When the HAKT went into good

The printinge, thus mod

and the second s

All were used by the navy as communications i retail or troop transports, none delivered to Da Nippon Koku KK, which continued until the end the war to use the HriK. No code name distinct from that allotted to the hist-line version was given by the Allies to this aircraft, and that is not say priving since out the H8K1, H8K2 and H8K2.1



# Kawanishi N1K1 Mighty Wind

Naval Fighter Scaplane Mights Otheral des. Wind Model 11 Allied code name Rex. Kaw nishi Kokuki KK Manufacturer Single-scater scapione fighter of Description. mid-wing monoplane configuration designed to support landings and provide cover over beach-heads 1,460-h p. Mitsubishi Kasci 13 or Engine 1,530-h p. Mitsubishi Kasei 15 arr-cooled radial Span 12 m (39 ft 4 in). Length TO 589 m (34 ft 9 in) Height. 4 75 m (15 ft 7 in) 23.5 sq m (253 sq ft) Wing area Weight empty 2,752 kg to 067 fb) Weight loaded 3,500 kg (7,716 lb) Crew. Maximum speed. knots at 5,700 m (18,700 ft) 200 knots at 2,000 m (6,500 ft). Cruising speed Normal: 570 nautical miles Range Maximum: 900 nautical miles Service cerling. 10,560 m (34,500 ft) Homb-load Two 30-kg bombs could be Continue Armament Iwo wing-mounted 20-mm. Type 29 Model I cannon and two fuvelage-mounted 7.7-mm. Type 97.

all authorities foresaw in 1940 that war with the Western Powers, they ght be called upon to put troops ashore at places. out of reach of land-based fighters and where the I carrier forces would be uneconomic. The Kawanishi Aivifu, or Mighty Wind, was designed to ect a consequent demand for scaplane lighters. puble of providing air support during and after brembarkation and of operating from improvised. bases. The prototype made its muiden flight on 6 May. 1942, but production did not get into its stride until the summer of the following year. By that time Japan had more need of defensive weapons than of aircraft. expressly designed to support offensive operations. After a few months, therefore, production of the NIKI was suspended in favour of the NIKI-J, a land-based counterpart east for a defensive role. The result was that, although the Ksofu was a success so far as its performance was concerned, only some moety aircraft of the production series were delivered.

### Kawanishi N1KI-J and N1K2-J Violet Lightning

Official des.

N1K1-J: Naval Interceptor
Eighter Violet Lightning Model 11,
11A, 11B, 11C
N1K2-J: Naval Interceptor Eighter
Violet Lightning Modified Model

Affied code name George

Manufacturers Kawanishi Kokuko KK Omura Kaigun Kokusho (ten

aircraft only)

Mitsubishi Jukogyo KK (nine)

arreraft only)

Aichi Kokuko KK (one airerafionly)

Showa Hikoko KK (one aircraft only)

Dat-Juichi Kaigun Kokusho (one.

aircraft only)

Description High-performance single-seater

land-based interceptor fighter, used also in modified form as fighter-

bomber

Technical data:

1-J 2-J
Lingine 1,990-h.p. Nakajima Homare 21
air-cooled radial
Spain 12 m (39 ft 4 m)
Length 8 885 m 9-345 m
(29 ft 2 m) (30 ft 8 in)
Height 4-06 m 3 96 m

Wing area 23.5 sq m (253 sq ft)
Weight empty 2,987 kg 2,657 kg (6,387 lb) (5,858 lb)

Weight loaded 3,900 kg 4,000 kg (8,598 lb) (8,818 lb) Crew One

Crew One

Maximum speed 315 knots at 321 knots at 6,000 m 5,600 m (20,000 ft) (18,500 ft)

Cruising speed 200 knots at 200 knots at

2,000 m 3,000 m (6,500 ft) (10,000 ft) Normal range 773 nautical 926 nautical

Maximum range 1,374 nautical 1,293 nautical miles miles

Service ceiling 12,500 m (0,700 m (41,000 ft) (35,000 ft)



5, p = 2 \* 1 1 Atmamacol 1 ..... 1 1

The NIXI-J Studen, or Violet Lightning, wadeveloped by Kawanishi as a private venture. The design was based on that of the NIKI scaplane, and was put in hand while the NTK1 was still on the drawing board. A Stalcanma Homare II ent. treplaced in production models by a Nakajima Homare 21) was substituted for the less powerful. Mitsubishi engine of the NIKI, and a retractable undercarriage for the floats. The prototype made its muiden flight on 27 December 1942. The naval authorities, at first sceptical but attracted by the

flying B - d rate of climb fell off fairly gh altitudes. Arrangements we emble NIK2 Ja not only at Kawanishi's factor like at factories owned or man arsenals. Chiefly because a ivenes of components. were delayed by an \_\_\_\_\_\_ ie of the ancillary Lims of sena picting more than a few aircraft

A A T P . A . Bog . S mis por a F . he a Sh was : " was capable of well over 360 and Vi and Vi and Vi and Vi

1" A BW3CHK K 32 Army Type by 5 no # Eng se ught Printer Cartist oned in appearance and or armound THE K IS DE 190 USE 11 plot use AT my WE defended CON ' es The A ex a ed . MARY

# Kawasaki Aircraft

## Kawasaki ki-10-I and ki 10-11

Ki-10-E Army Type 95 Fighter: Otheral des. \* The II: Army Type 95 Eighter V e sie name \* May 1 trit K - K F F KORO KK Description ie lighter will Linging 850-h p. Kawasaki Ha 9 Ha V12 Kt 10-1 9 55 m (31 ft 4 in) "spun Ki-10-11 10:02 m (32 ft 11 in) Ki-10-I: 7.2 m (23 ft 7 in) I samplify Ki 10 H, 7 55 m (24 ft 9 m) Height 3 m (9 ft 10 m) Ki 10 1 20 sq m (215 ) thing area. Ki 10 H. 23 sq m (248 sq ft)

neuvrable biplane fighters with gbbourhood of 250 m p h p 16 000 feet in five minutes Ki 10 I and II did good service in their day teline units when r with the Western Powers in 1941. ed at the end of 1938 and enviring affectable were nots. During the Second World. f, seen occasionally by Allied. I him, and were allotted a code name in

gadrons were still

### Kawasaki Ki-32

Otheral des. Atmy Type 98 Single-Frigine Light Homber

Allied code name. Mary

Manufacturer Kawasaki Kokuki Kogyo KK Description Light bomber of monoplane configuration with fixed spatted

undercarriage.

850-h p. Army Type 98 (Kawasak) Linging

Ha-9-II) liquid-cooled V12

Span 15 m (49 (t 3 in) Length 11 64 m (38 ft 2 in) Height 29 m (9 ft 6 m) Wing area 34 sq m (366 sq ft) Weight empty 2,349 kg (5,179 lb) Weight londed 3,539 kg (7,802 lb) Crew Two

Maximum speed 423 km h at 3,940 m (263 m p h,

at 13,000 for 300 km/h (186 m p h ) Cruising speed Normal range 4,300 km (826 miles) Maximum range 1,960 km (1,218 miles)

betwice celling. 8,900 m (29,000 ft) Bomb-load Normal: 300 kg; maumum: 450 kg

Armament

One forward-firing and one flexibly mounted, rearward-firing 7-7-mm. Type 89 machine-gun

The K1-32 was designed to meet a specification of 1936 which called for a light bomber capable of carrying 300 to 450 kilograms of bombs. The projetype first flew in the spring of 1937, but production did not begin until more than fifteen. months later. It ceased in the summer of 1940, after some 850 aircraft of the production series had been completed. Although encombered by a fixed under-



# Kawasaki Ki-45 KAI Dragon-Killer

Official des.

Lagines:

Allied cycle name. Post

Kanauki Kokuki Kumo I > Manufacturer Description Imp-scaler (win-engi

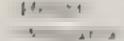
> AND DESCRIPTION OF THE PARTY OF Two 950-b p Army Tyl-

> > (Navasma Ha 25) or 1,050-1 Army Type I (Matsubeshi H

Army Type 7 Two-Seater I

Model A. B. C. D D

116 "Hear!" 10.6 m t length



1 11

free " far year"

( - ( - 1 P. .

e F 3 F 4

Resignation of the

Arthurment.



Nawasaki Torsu, or Dragor. by the military tanufacturers in 1937 to sy lighter comparable with peraft under development in I ritted States, Nakajima, Kawasaki, ruraft to be called fee-- Kt- 37, the Kt 38, and the Kt 39 . a mwck-up of the Kr 3R and opped After studying drafted a specification as the hasts of an experiprovered by two Bristol Mercury inder Ikence by Nakaron Japan as the Nakauma Ha-20h Two le s ni ed of put in

and unsatisfactors and relyed fr

afhor hes revised if A

stdered In sitgely responsible. > t worked out explied version with a dimmer and exore bitting power rimes were never see by the muldary authorities in October 1940, and a prototype of the redesigned. t was completed in the early summer of 1941. ive trials and the bunding of action arrivalt and two more nes production of the Ka 41 Type 2 Two-Seater Fighter Model A Dragon K., er, began early in 1942. Eirst-line units: found it so useful in a ground-attack and anti-shipping that a new version, the KAlb, was developed. for such tasks. Later, the Mitsubishi stdopted in place of the 5 Other versions of the KAL I before the end of the war included the ght fighting, and the KAld cannon.

the second second second second

b, c, and d series were completed nd the end of the war. Plans to equip to-air radar were defeated by production difficulties after one gircraft had been so

Les. Altogether, some 1700

Equipposi:

### Kawasaki Ki-48-I and Ki-48-II

Otheral des. Ni 48 T Army Type 99 T

Engine Light Bomber Model 1A.

Ki-48-II: Atmy Type 99 Twin-Engine Light Bomber Model 2A

28, 20

Albed code name | Lily Manufacturer.

ngines

Kawasaki Kokuki Kogyo KK Description Four-scater light bomber of mid-

wing monoplane configuration. Two 950-h p. Army Type 99.

(Nakajima Hn. 25) or 1,150-h p. Army Type I (Nakajima Ha 415)

air-cooled rad also

17.47 m (57 ft 4 m) (11b, 17.45 m) hpan -

Length 48 J; 12 6 m (41 ft 4 m) 48 H: 12 75 m (41 ft 10 m)

Height 3.8 m (12 ft 6 in) Wing area 40 sq m (431 sq ft) Weight empty 48-1: 4,050 kg (8,929 lb)

48-11: 4,550 kg (10.03) 1b) Weight loaded 48 1: 5,900 kg (13,007 lb):

45 H: 6,500 kg (14,330 lb).

Crew. Lour

Maximum speed 48-1: 480 km h at 3,500 m. (300 m p b at 11,500 ft)

48 H: 505 km h at 5,600 m. 1314 m p h at 18,000 fti.

Cruising speed 350 km h at 3,500 m

(217 m p h, at 11,500 ft)

48 T: 1,980 km (1,230 miles) Normal range 48. H: 2,050 km (1,275 miles)

Service ceiling

Maximum range 2 400 km (4,490 miles) 38 In 9,500 m (31,000 for

48C H; 10,000 m (33,000 fb) Bomb-load 48 1: Normal, 300 kg; maximum,

400 kg

48 H: Normal, 400 kg; maximum, 400 kg

Most models: Three flexibly Armament

mounted 7.7-mm. Type 89. machine-guns in forward, dorsal-

and ventral positions.

Some late modely: Two 7.7-mm. Type 89 machine-guns in forward position, one 12.7-mm. Type 1. machine-gun in dorsal position, one 7.7-mm. Type 89 machine-gun.

in ventral position.



Line the British Bierheim, the German Julie Russian Turoics SB 2, the Kr 40 was designed a A familiar for a new column and a second and the first of the first of

In the time it was used in a major was could everbad it without much difficulty. The ki 45 II although some fifteen miles an hour faster and qnell armound by Japanese standard highly vulnerable. Nevertheless the authorities kept it in production until the latter part of 1944. B. that time beath 2000 ks 48 Is and IIs had bepicted. They included a comte III

### Kawasaki ki-56

(Mircial des.

Allied code name. That a Manufacturer Kawasaki Kokuki Kogio KF Description Twin-engine transport an and was g monoplane configuration. Paragranes. Iwo 950-h p. Army Type 95. Chaka ma Ha 29 air-cooled Fadials. Span 19 9/4 m (65 ft 6 m) Length 14 9 m (48 ft 11 in) Edelight. 3.6 m (11 ft 10 m) Vi teg area 51 2 sq m (551 sq ft)

Army Type I I reight Transport

White preparing in 1919 to build the Lockheed 14 WG3 transport aircraft under hience, Kawasakiplanned a modified version with a better power-toweight ratio and improved facilities for loading and unloading. The prototype was completed in November 1940, and production began in August : 1941. About 120 Ki. 5/n were built between 1941. and 1943, when production censed.

### Kawasaki ki-61 Swallow

Official de-

Athed execution Manufact Description

3 . .

Span Length

Height Wing area Weight empty

Weight loaded

(trew Maximum speed

h at 4 560 m. 3/3 mph at 16 (0.00 ft) LKAlc: 590 km h at 4 260 m. (366 mph at 14 0 0 ft) II KAI: 610 km h at 6.000 m. (350 m p h, at 20 000) ftt.

48 Army Type 99 Twm-Engine Light by broadly comparable with the British sian Tupoley S8-2 the Ki-48 was tantial numbers between the summer -- -- The Albes called # LILY

to glovery & 20, 2000 + +1 Army Tigo 3 Fights Han THE A RESIDENCE AND REST WE THERE AS THE · the state of the the way a best to

( runsing speed

400 km h at 4 (00) m (250 m p.h. at A CHARTE.

Normal range

61.1 (60 m (373 miles) =11 KAI: 1,100 km (684 m les) Maximum range. Ia, Ib. 1,100 km (rost m lex).

> 1 KAK 1 8(0) km (1 120 miles) JL KA11 1 600 km (995 milect) 10 0 0 to 11 600 m (33 000 to

Service decling.

Some modely could carry two

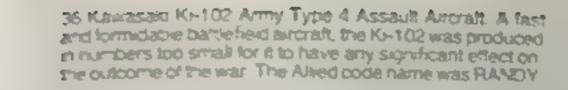
Armanicol.

Homb-leud

Modelt IA, IB. Two foselages 12.7-mm Type I fone guns and two wingnted 7.7-mm. Type 89 or 12.7-mm. Type I machine-guns. two 20-mm. Mauser cannon. Models IC, ID, 2A, 2B, Twomounted 12.7-mm Type I → nim Ho 5 1 two wing mounted Type I machine-gut Ho 5 or 30-mm Ha 105

As holders of a licence to manufacture in Japan the Darmler-Benz DB 601A liquid-cooled engine, Kawasaki were invited in 1940 to design a heavy and a light fighter powered by it. The projected heavy fighter was afterwards dropped, but a Kawasaki-built DB 601A, the Ha 40, was completed in the summer of 1941 and a fast, single-seater. fighter built round it was tested in December, Production began some twelve months later and the new aircraft - the ki-61-1 Hien, or Swallow - was introduced to active operations in New Guinea in April 1943. Its appearance was so markedly Luropean that it was given the code name Tony in the belief that it was either a copy of an unknown. Italian lighter or a version of the Messerschnutt (BO) 109 built under heence. Well over 2,500 aircraft. of the Ki 61 I and Ki-61-1 KAI series, the latter a modified version with strengthened wings, were manufactured between August 1942 and January 1945. Meanwhile a new version of the Ha 40. engine, the Ha-140, was used to power the Ki 61 II, an unsuccessful development of the Kt 41 which did not get beyond the prototype stage. A modified Ki 61-11, the Ki-61-II KAL was then introduced, but only a few aircraft of this series. were completed to the original specification.







### Kawasaki ki-100

Description

Army Type 5 Fights \*\* Official des.

Affect code name r kr Kokuki kor 3 k Manufacturer

LSOND p. Mitsubishi Ha 112 II angine.

man approximate the state of 12 m (39 ft + .... Name: # #2 m (28 ft 11 in. Length 3.75 m (12.ft 4 in) Bleacht

Wing area 20 ч

2,525 kg (5,567 ft Weight empty Wright Inuded 3.495 kg (7.705 lb)

Crew (Irve

Maximum speed: 580 km h at 6 (kii) m (360)

at 19 90 ft) fair 10 000 i "Make hor 312 mph 1

400 km h at 4.000 m Q50 m p.l.

at Ditteriffe

Normal 1,440 km (870 miles) Range

With drop-tanks, 2 200 km.

GLH67 males a

Two 250-kg bombs could be Bomb-loud

carried in place of drop-tank Atmatecut. Two fusciage-mounted 20-n Ho 5 cannon and two wing mounted 12.7-m Type I

muchine runs.

When B 29 bombers based in India began, in the summer of 1944, to make high level attacks on

Ha H2 II rad all englie to the slim fuselage of the Ki fil Of some 375 Ki fil II KAL

lived between the following September and the end of the war. 275 were fitted with Mitsubst.

and completed as high a titude interceptors. Three were used as prototypes with the designation Kt 100 the rest t

devenation Kt 1

Model 14. In add tion, about a hundred No. of the last of

received the devienation Ki 100 Ib or Army Type 5 Fighter Model IB: A version powered by a turbosupercharged variant of the Ha-112 II and given the companion Kr 100 II was projected, but did not get beyond the prot stage. The Ki 10 you dielimb to 10 000 rectics in tweet in history and was a brisk performer at such altitudes, but its attract of theft a good deal to be deuted and many of the pilots who handled it had very little operational experience

### Kawasaki ki-102

Official des. Albed code name [ Manufacturer Description

Army Type 4 Assault Aircraft Kawasaki Kokuo Kogyo kK Two scater twin-engine mid-wing used in small number track mireraft and inter ded also for use as high altitude terceptor and as night beliter. Two 1 5000h p. Army Type 4.

is the Ha 112 H) are cooled.

100 K +1 1100 4 - 100 250 120 Weight loaded Crew

Lagines

(12 ft 2 m) 4 so m (366 sq ft) 1950Ekg (10.913.05) 10 kg (16 094 lb) TiAL Maximum speed: 580 km h at 6 000 m. in lettern pilit at 20,000 fra

5 57 m (51 ft 1 in

1.45 m (37 ft 7 m).

Cruising speed Range: Service ceiling. Homb-load Armament

August Supposed to 2,000 km (1,243 miles) 10 0 0 m (33,000 fb) Two 250-kg bombs One 57-mm. Ho 401 cannon in the nose two 20-mm. Ho 5 cannon in ventral position, one Herobly mounted 12.7-mm. Type I. machine-gun firing to the rearIn the late summer of 1943 the military authorities accepted a proposal from Takeo Doi that a groundattack version of the Kawasaki Ki-96 heavy fighter, then under development but not destined to go into production, should be built as a successor to versions. of the Ki 45 employed in that role. The prototype first flew in the following March, and in October the aitstall went into production as the Ki-102b, or Army Type 4 Assault Aircraft. Rather more than 200 aircraft of this series were completed. Some took part in the spring and summer of 1945 in the defence. of Okinawa, others were used for experimental purposes. A high-altitude interceptor version, the Kt. 102a, was projected, as was a night-fighter. version, the Ki 102c. Neither got much beyond the prototype stage, but some twenty or more preproduction aircraft of the Ki 102a series were builtand lifteen of these were delivered. They were armed with 37-min. Ho 203 and 20-min. Ho 5 cannon and powered by Ha 112 If Ru engines with turbosuperchargers. In addition, experiments were made with a pressure-cabin version of the Ki-102b, powered by the Ha 112 II Ru engine and designated the Kawasaki Ki. 108, but the two prototypes were still under trial when the warended -

# Kayaba Ka-l

Official des

Altered crede marris Manufacturer.

R.R. Kasalia Seisettiill

E-mgine :

Description.

240-b p. Argus As 10

12.2 m /4 Motor disposter 9.2 m (1) Length 775 kg (1 "(r) Weight empty Weight leaded 1,120 to 62 529

6 20 00

Maximum speed 165 km h (1) Criming spred 1151 Ramer 200 km f1 3.500 av (11.50) (1. Service ceiling. Two 60 kg denth charges could to

Bothle load

Atmosment

In 1937 the nortary authorities imported an American built Kellett KD 1A autogran with the

At te being the Lout it was irregurable demand-The authorities delivered the wreckage to kik. Baraba Scouliusho a small firm with an interrch, and told them to build a similar. risactione. A prototype was completed in the spring of 1941 and made its maiden flight on 26 May. About 240 aircraft of the production series were. efferwards completed. Sporting for gunners was their

Donner ammere answerters tound that the navy could no longer protect the army's external lines of communication and heran tointganize their own convoys, the kis I was chosen. to fly anti-submatine patrols from a merchant. vessel transformed into an escort carrier. The observer had then to be left behind so that two depth charges could be carried. Two experimental: tersions, the Ka-1 KAI and the Ka-2, were builtbut neither went into production.



# Kokusai Aircraft

### kokusai ki-59

Officent des. Albed code name. Theresa. Manufacturer

Description

Atma Type I Transport Aircraft.

Suppose Kokusar Koku Kogyo KK

Light transport and communications a reraft of high-wing

Engines

Two 450-h p. Arms Type 95 (Hitachi Ha 13a) air-cooled radials

Span 17 m (55 ft 9 m) Length 12.5 m (41.fg) Heright 3 05 m (10 ft). 38 4 sq m (413 sq ft) Wing area

Nippon Kokusai Koku Kogyo KK, more often known as Kokusai, was a small company formed in 1941 by the ama gamation of two even smaller firms, Sippon Koku Kopeo KK and Kokuu. Kokuki KK. In 1937 and 1938 Nippon Koku Kopio designed and built in prototype form (

proved satisfaction. In 1941 it was put into prediamon as the Ki. Sv or Army Type I Transport. Aircraft, Suppost Kokusai Koku Kogyo built about stifty aircraft of the production series before the Kr. 59 was superseded by the Tach kawa Kr. 54c.

### Kokusai ki 26

Official des.

Arms Type 1 Command Fraison Arrerat

Allied code name Manufacturer Description

Nippon Kekusai Koku Kogyo KK Two-seater arms co-operation aircraft of parasol-wing monoplane configuration used for artiflers receive and ance as communications. arcraft and as shipborne abmarine-spatter

310-b p. Hitachi Ha 42 att-cooled. Engine

radial 15 m (49 ft 3 in) -מחקר Length 9 56 m (31 ft 4 in) Height 2 9 m (9 ft 6 in).

Wing nrea-

29 4 sq m (316 sq ft) :

A Japanese counterpart of the Fieseler Fi 156. *Storch*, the Kokusai Ki. 76 made its first flight inprototype form in May 1941, and went intoproduction in November, I rom the latter part of 1943 it was used not only as an artiflery recon-

sance and communications aircraft but also, in modified form, to make anti-submarine patrols. from the deck of a former merchant vesselemployed as an escort carrier. In the last of these roles, it carried two 60 kg depth charges. The Ki-76 had a maximum speed of nearly 180 kilometres or roughly 110 miles an hour and could reach an altitude of more than 5,600 metres of approximately 18,500 feet. Its theoretical runge in still air was 750 kilometres or just under 470 miles. Production continued until 1944

# 

### Kokusai Ki-86

See Appendix, Bucker Bu 131

### Kokusai Ki-105 Phoenix

Army Experimental Transport Official des-

Aircraft Phoenic

Allsed code mame. None.

Nine prototype aircraft built by Manufacturer Nippon Kokusai Koku Kogyo KK

Description Powered version of Kokusai Ku 7 glader intended for carriage of fuel

Two 940-h p. Mitsubishi Ha-26-II Lagines. air-cooled radials.

35 m (114 ft 10 in) 25 past Length: 19 92 m (65 ft 4 in) Cruising speed 220 km h (£17 m p h ) Maximum range 2 900 km (1,553 miles)

The Kokusai Ki. HB Oktorl, or Phoenix, first called the kit 7 II, was a powered version of the Kokusa-Nu-7 gader, developed during the fast few months. of the war for the purpose of carrying desperately needed supplies of oil from Sumatra to Japan. Nine. prototypes were tested, and plans were made to produce 100 arcraft.

### kokusal Ku-7 Crane

Official des. Army Experimental Transport

Glider Crane Allied cride name. None.

Manufacturer. Experimental version built by

Supposi kokusai koku kopio kik Large twin-boom high-wing Description

monoplane towed glider with wheers

Span 35 m (114 ft 10 m) Length 19 92 m (65 ft 4 in)

The largest glider built in Japan during the Second World War, the Ku 7 Monatura, or Crane, was designed to carry up to thirty-two troops or an 5-ton tank, and to be lowed by a Mitsubishi Ki 67. or a Nakajima his 49 bomber. It was tested in the tate summer of 1944, but did not go into production

## Kokusai Ku-8-II

Official des. Army Type 4 Large Transport

Affard code name Gander (formerly Goose)

Manufacturer Description

unes removed and under-

the second second

sortrage replaced by slods. 23 2 m (76 ft 1 in) Span Length

13 31 m (43 ft 8 in) 

Powers, the trom a Kokusai Ki 59 transport aircraft and the airframe was lested as a prototype goder with the designation.

I version was put into pro-Hor Army Type 4 Large Lip to twenty soldiers or a

mountain gan with its crew could be carried, and the glider could be towed at speeds of the order of 220 kilometres an hour by a Mitsubishi Ki 21 II. bomber or umilar aircraft. The Ku 8 II was the only Japanese transport gisder met in combat by Allied. Direct

# Kyushu and Watanabe Aircraft

### Kyushu J7W | Magnificent Lightning

Official des. Navai Experimental 18 Shi Olsu (B) Type Interceptor Fighter Allied code name. None

Manufacturery Kyushu Hikoki KK (formerly KK)

Watarizhe Tel-koshor Nakajima Hikoki KK

Single-seater canard-type low-sing Description monoplane intended as high-

Allatude interceptor

1.ngine 2,130-h p. Mitsubishi MK9D

F-cooled radial driving pusher

warm. I fe st 11 114 m (36 ft 6 m)

Length 9.66 m (31 ft 8 m) Height 3 92 m (12 ft 10 in) Wing area 20.5 sq m (221 sq ft) Weight empty

Weight loaded 4,928 kg (10/85436) Crew

One Cruesing speed

Span

Range

Maximum speed 405 knots at 8,700 m (28.5)

228 knots at 4,000 m ( ... 460 nautical miles



12,000 m (39,000 ft) Service ceiling.

Two 60 kg or four 30 kg bombs Bomb-load

could be carried.

Four 30-mm. Type 5 cannon in Armament

the none

Captain Masaoki Tsuruno, of the Imperial Japanese. Navy, proposed in 1943 or earlier a high-altitude. hter of canard contiguration, to be powered. ally by a radial engine and ultimately by a Tests were made with wooden gliden, and in the summer. Kyushu were instructed to design such an aircraft in association with a team of naval experts led by Tsuruno himself. A prototype. was completed by the spring of 1945. A pusher arractes att of the fusciage, fin-and-rudder assemblies ttached to swept-back wings, and horizontal. introf surfaces to port and starboard of the

gave it, to a marked degree, the air of flying tail-bits) which is so disconcerting an attribute of anard-type aircraft. The authorities, eager to see the JTW in service, gave orders for production to begin before the prototype made the first of three short flights. An output of 150 aircraft a month from two factories was envisaged, but the war endedbefore even the first batch could be completed.

# Kyushu K9W1 Maple

See Appendix, Backer Bu 131

# Kyushu K10W1

See Appendix, North American NA 16-4R.

# Kyushu KIIW White Chrysanthemum

Official des. Naval Operational Trainer White. Chrysanthemum Model 11 Allied code name None

Manufacturer Kyushu Hikoki KK (formerly KK Watanabe Tekkosho)

Description Five-scater single-engine mid-wing monoplane used to train bomber.

CECHAS. Engine 515-b p. Hitachi GK2B Amakaze 21

arr-cooled radial \*pas 14 98 m (49 ft 2 in) Length 10 24 m (33 ft 7 in) Height 3-93 m (12 ft 11 in) Wing area 30.5 sq m (328 sq ft)

I was a seek Known to the or White the control of the state of the same of th the beautiful nested of the restlet reserves sale to the second of the than speed. was 124 knots at 1 Table circs (\$ 50) feet, and one Partice has be were corn of KIIWs described the defice of a the entropy side to provide a externa "Alka herzh

# Kyushu Q1W Eastern Sea

Official des. Naval Patrol Aircraft Fastern Sea Model 11

Allied code name. Lorna.

Description

Manufacturer Kyushu Hikoki KK (formerly KK) Watanabe Tekkosho)

Twin-engine convoy-protection

aircraft of low-wing monoplane

configuration

Two 610-h p. Hitachi GK2C Lingings Amakaze II air-cooled radials

Span 16 m (52 ft 6 m) 12 085 m (39 ft 8 in) Length 4 118 m (13 ft 6 in) Height Wing area 38-2 sq m (411 sq ft)

The Kyushu Tokal, or Lastern Sea, was designed to meet a specification of 1942 which called for a relatively slow patrol aircraft capable of spotting and destroying submarines at a considerable distance from the shore. The prototype was completed in 1943 and roughly 150 aircraft of the production series were built between the spring of 1944 and the end of the war. The Tokat had a maximum speed of 174 knots at 1,340 metres of roughly 4,400 feet, could cruise for five to six hours at 1,000 metres. without refuelling, and carried two 250-kg bombs. or an equivalent weight of depth charges. Enclosed cockpits provided accommodation for a crew of three or four. It was armed with one, or sometimes two, forward-tiring 20-mm. Type 99 cannon, but its ceiling of less than 4,500 metres and single rearwardtiring 7.7-mm, machine-gun made it highly vulnerable to Albed fighters.



# Mitsubishi Aircraft

### Mitsubishi A5VI4

Official des.

Naval T

Figl (er Model 4 faster ......

Model 24a

Manufacturers

Allred evide name. Claude (also Sand. Mitsubishi Jukopoo KK

KK Watanahe Teleke

Description

Dar-Nyuschi Kaigun Kokusho. Single-seater carrier-borne fighter of low-wing monoplane configura-

non with fried spatted under CATTIAGE.

I melane

785h p. Nakaoma Kotoboki 41

Name : 1-rngth Height

Wing area

7.565 m (24 ft 10 m) 1 27 m (10 ft 9 in) 17 8 sq m (192 sq ft) 1,216 kg (2,681 lb)

Vicight empty Weight Jonded Crew

Range

or 41 KAI air-cooled radial 11 m (36 ft 1 in) 1,671 kg (3 684 lb)

Maximum speed 235 knots at 3,000 m (10 nm ft) 648 nautical miles

MERICO CONTO Beenb-lead Atmament

> Ni In and the Ki II, were built in prote-If id did not go into production. When

126 164

Japan went to war with the Western Powers a resons of the ASM had been discarded by first line. units except the ASM4, which is 8 formed part

L'IT et carriers :

Hoths, and Rimo. The Zu ho and the H 114 11 24

REHO was serving with Vice-Admiral N. Kondo s. Southern Force. So far as is known, fighters from the Risgo which attacked an American scaplane tender If Davido in the early hours of It December 1941. were the only ASMs used by first-line units against. the Allies during the Second World War. Some-Atterall from training units d d, however, take partin fulcide attacks ( ... Albed warships in 1945)

ASM2b Naval Type 96 Carner-borne Fighter Model 2-2. The model shown (with enclosed cockpit) was ersion which in tarn gave 'o the Alies as CLAUDE and eax of war to be the Japanese.

### Mitsubishi A6M Zero Fighter

Naval Type O Camer-borne Efficial desc

r Model 11, 21, 32, 22, 52A, 52B, 52C, 53C, 63

Zeke 32, formerly Hap Allied code name

idels: Zeke 1 Ishi Jukogyo KK Manufacturers ma Hikoki KK

Single-seater carrier-borne or land-Description I lighter of low-wing monopiane configuration with retractable.

creattage

A6M2 950-h p. Nakajima Sakae poled radial.

1 5, 5a, 5b, 5c: 1,130-b p Nakanima Sakae 21 air-cooled

M Mfc, 7: 1,130-h p. Nakajima - kae II air-cooled radial. A/sM2 Model 11: 12 m (39 ft 4 in). 36 M2 Model 21: 12 m (39 ft 4 m). with folding wing-tips extended

delv' 11 m (36 ft 1 in). y 9 06 m (29 ft 9 m) Less, the \* models: 9 121 m (29 ft 11 in)

Height A6M2: 3 05 m (10 ft)

Later models: 3 509 m (11 ft 6 in) Wing area. Larly models: 22.4 sq m (242 sq ft) Model 32, 21-5 sq m (232 sq ft)

Later models: 21 3 sq m (229 sq ft) Farly models: 1,680 kg (3,704 fb).

Model 32 | 1 807 kg (3,984 lb) Later models, 1,876 kg (4,136 lb). Weight founded Early models, 2,410 kg (5,313 fb) Model 32, 2,544 kg (5,609 lb)

Later models: 2,733 kg (6,025 lb) Crew One

Weight empty

Engine

Span

Maximum speed | Farly models: 288 knots at ..

4,500 m (15,000 ft): Model 32 (295 knot) 6 000 m.

120 000 fb Later models: 305 knots at 6,000 m

(20,000 for Cruising speed. Early models: 180 knots at 5,500 m.

> CER ORIGINAL. Eater models, 200 knots at 5,500 m.

Normal range Range with drop-tanks

1,010 mautical miles

(18 O O ft)

A6M2 1,675 nautical miles

Model 32: 1,284 nautical miles A6M5, A6M6: 1,037 nautical miles A6M7: Not known, Drop tanks held more than twice as much fuel as those carried by earlier models.

Service ceiling. Larly models: 10 000 m

(33,000.6)

Model 32: 11,000 m (36,000 ft) Later models: 11,700 m

(38,500 ft)

Bomb-land A6M7 could carry one 500-kg bomb; other models, two 60-kg

bombs

A6M2, A6M3, A6M5 (except Armament A6M3b and c and night-fighter

version): Two fuselage-mounted 7-7-mm. Type 97 machine-guns. and two wing-mounted 20-mm. Type 99 or (rarely) 30-mm cannon-A6M5 night-lighter: Additional fuselage-mounted 20-mm. Type 99. cannon firing at angle to line of

flight

A0M5b: One fuselage-mounted 7.7-mm. Type 97 machine-gun, one fuselage-mounted 13 2-mm. Type-3 machine-gun, two wing-mounted 20-mm, Type 99 cannon. A6M5c, A6M6c, A6M7: Two wing-mounted and one fuselagemounted 13/2-mm. Type 3: machine-guns, two wing-mounted 20-mm, Type 99 cannon.

The phenomenally successful A6M originated with a specification of 1937 which called for a currier-borne tighter of high performance to succeed the A5M. An amended specification was issued about five months after the first. A prototype designed by a team led by Jiro Horikoshi made its maiden flight. on I April 1939. It passed all its tests except that it was too slow. The 780-horse-power Mitsubishi Zuisei engine was therefore replaced by a Nakajima Sakac 12, and in 1940 the aircraft was put into production as the A6M2 or Naval Type O Carrier-borne Fighter Model 11. It was known to Japanese airmen as the Rel Sentoki, or Zero Lighter, a term commonly abbreviated to Retten. The Model 11 was soon replaced by Model 21, with folding wing-tips. A6M2s were first used operationally in China, and in the summer of 1941 the British authorities in





Mitsubishi Kinsei 62 engine Largi





### Mitsubishi A7M2 Harricane

Naval Catrier-borne Fighter Official des. Hurncane Model 22

2 + 5 ... A. tr. . FINANTIA

Affred ende name Sam

Mitsubishi Jakogo a KK Manufacturer Single-seater carrier-borne fighter Description

of low-strig monoplane con-

figuration.

2,200-h p. Mitsabishi MK9A 1- augme

air-crimled radia! 14 m (45 ft 11 m) Separa Fl m (36 ft l in) Length 4 28 m (14 ft | In) Height 30.9 sq m (332 sq ft) Wing area. 3,226 kg (7,112 lb) Weight empty 4,720 kg (10 406 lb) Weight Raded

Crew One

Arminoent

Maximum speed 139 knots at 6 600 m (21,650 ft)

225 knots at 4,000 m (13,000 ft) Crusing speed An endurance of 21 hours at 250. Range. knots and an additional half hour

at full rated power was specified.

10,900 m (35,750 fg) Nerster ceiling.

Two 250-kg bombs could be (Somb-load

carried in piace of drop-tanks Lour wing-mounted 20-mm. Type

29 Model 2 cannon

The Milsubishi A7M Reppu, or Hitticane, was intended as a successor to the A655 Zero Lighter. The project was first discussed in 1940, but was thelsed became Mitsubishi's experts were prerecupied with improved versions of existing aircraft. It was record in 1942. The specification then insued called for a cannon fighter with a maximum. speed of 345 knots, capable of climbing to 6 000. encires in less than six minutes. Jiro Horikoshi of Mitsubishi calculated that this performance would he attamable only with an engine of the calibre of the Mitsubishi MK94 or 9H but the navalauthorities ruled in favour of the less powerful. Nakajima Homare 22. A prototype A7M1 way. completed in the spring of 1944. It handled well, but fulblied Horskoshi's prediction by attaining a musulnum speed of only some 305 knots and taking more than ten minutes to reach 6,000 metres. The forward part of the fusciage was then redesigned to accommodate the Mitsubishi MK9A, and a prototype A7412 made its first flight in October. Its

aces which MK9A enzine was made. To ype or preicast three was that only es was completed gruen, to be 15, was projected, as

...... by a MA9C engine.

Latergroup take

er supercharger,

### Mitsubishi B5M1

Navat Type 97 Carmer-borne Official des. Attack Beet ber Model 2. Atted code name. Kate 61 (formerly Mahela) Maturbish Jakago KK Manufacturer Three-seater low-wing monoplane Description. itrict borne and land ind torpedo-homber - 1) from land bases 1,000-h p. Mitsubishi Kinsei 43 Fingine. 15 51 . ........ Spine. 10 234 m (33 ft 10 m Length

Weight loaded T by Crew.

Maximum speed - 705 knots at 2 200 m (7,200 ft)

1,888 nautical nuies Normal range

One Mri.kg torpedo or equivalent Bomb-land weight of bombs

Armament

One flexibly mounted 7.7-mm Type 92 machine gan

The BSME was Mitsubish s equivalent of the Nakatima B5N. It was used briefly from land bases. at the beginning of the war of 1941. 5, but its fival was so phenomenally successful that production was terminated after 125 aircraft had been delivered

### Mitsubishi C5M2

Naval Type 98 Reconnaissance Official des. Aircraft Model 2

See Mitsubohi Ki-15-II and C5M2



### Mitsubishi F1M2

Otheral des-Naval Type O Observation Scaplane Model 11

Albied code name. Perc.

Manufacturery Mitsubishi Jukopyo KK

Dat-Normchi Kaspun Kokudio Iwo-scater short-tange recon-Description naissance scaptane of biplane.

configuration with large central.

float

875-h p. Mitsubishi Zuisei 13.

a r-could radial Spun 11 m (36 ft l m) Length 9.5 m (31 ft 2 in) Height 4 m (13 ft Lin) Wing area 29.5 sq m (31K sq fr) Weight empts 1 928 kg (4 251 lb) Wers hi Jouded 2,550 kg (5.622 lb)

[ ren IND

Maximum speed 200 knote at 3,440 m (11,250 fr)

Ramer 4(0) nautical miles berrice criting. 9 440 m (31 000 ft) Homb-froid Two (0-kg bombs could be carried

Armament One rearward firing Type 92 and two forward-firing Type 97. 7.7-mm ma, hone-gum

The Mitsubishi E1M flext flew in 1936, Fourprototypes with the designation F1M1 were built and texted before a much-modified version went into production as the I IM2 or Naval Type O Observation Scaplane Model 11. Designed to be launched by catapult from cruisers and battleships and to act as spotter for ships' guns and to report the approach. of hostile warships, it was used during the Second. World War for many other purposes and had often to operate from improvised bases in natural. or artificial harbours or lagoons. On the whole it acquitted itself well as a general reconnaissance aircraft and even as a fighter and dive-bomber. It was also pressed into service for convoy escort and off-shore patrols, and its success as a dive-bomber. delivering two 60-kg bombs led to an experiment in which it was made to carry a 250-kg bomb. Morethan a thousand I IM2s were completed, about half of them by Mitsubishi and the other half by the 21st Naval Air Arsenal (Dai-Nijoichi Kurgun-Kokusho). A few were modified as trainers with the the designation 1 1M2 K





### Mitsubishl G3M2 and G3M3

Expo 96 Attaca Otheral des GIMIT 1 Fype 96 Attack Butcher 1 let 31

Allied guide name. No

Engines

Manufacturers

Mittabida Jungan KK Nakajima Hakoki KK

Description Twin-engine land-based long-range Number and torpedo bomber of

mid wing monoplane configuration GJM2 Two E075-bip Mitsubed Kir sei 41-42 or 45 airs 1111

rad also

GIMI Iwo Little p. Mitsubreh.

Kinsei 31 air-cooled rad als-Spean. 25 m (82 ft) Length 16:45 m (54:ft)

Height 3 685 m (12 ft | in). Wang area. 75 sq m (307 sq ft) . Model 22 4 965 kg (10 9364). Wright empty

Model 23 5 243 kg (11,55) [6] Wright loaded Models 22 and 23 8 (11) kg.

147 637 (N)

Crem Early models. Five

Later models, Seven Max ... Larly models (202 knots at 4 000 m. 413 0 O for

Later models, 225 knots at 6 000 m.

2 miles 

G3512, 150 knots at 4 0 0 m.

illange:

G3M3 160 knots at 4 000 m.

all boom for

Maximum range

Service certains.

Homb-load

Armament

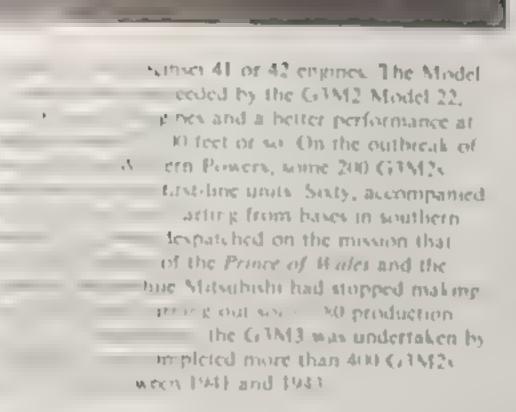
G1512 9 1 1 m (30 0 4 cfg) 53341 T0 250 m (33 50) fr One Williag forpedo or an

Model 21 Three 7.7-mm. Type 92 tie ventral and

23 O: 20-mm Model I cannon in doesa em Type 92 in dorul and beam

of be

In 1933 a future Comma deran Chief of the Combined Heet. Admiral Isoruku Yamamoto. suggested that the naval author ties should develop a long-range land based a reraft to supplement the was to invote Mitsubida to about proposals for a munting recently to record of from which a torpedo-bomber might be developed. A prototype designed by Sueo Honio in association with Tomo-Kubo and Nobubiko Kusabake was tested in 1934. Impressed by its good all-round performance and phenomenal range, the authorities then asked for an attack-bomber capable of carrying an 800-kg payload I wenty-one prototypes or pre-production models were texted before the aircraft went into production in 1936 as the G3ML or Naval Type 96 Attack-Bomber Model El. This version, powered by Mitsubishi Kinsei I engines, was followed after some thirty to forty aircraft had been built by the G3M2



### Mitsubishi G4M

Official des-

G4M1 Naval Type I Attack-Borr ber Model 11, 12 G4M2 Naval Type I Attack: Bomber Model 22, 22A, 22B G4M2a: Naval Type I Attack-Bomber Model 24, 24A, 24B 240,241 G4M3 Naval Type I Atlacks

Allied code name. Berty Manufacturer. Description

Borrher Model 34, 34A, 36 Mitsubishi Jukogso KK I win-engine land-based longrange bomber and torpedo-bomber. of mid-wing monoplane conf guration -

on his will beginner Gille Navie Types on America. Removed, and not reserved. It goods be moore of this many supplemented by G4M1 torpedo-bombers and Tarity C5M2 reconnaissance aircraft, played a leading part in the sinking of the Prince of Wales, and the Repulse. off the east coast of Malaya in 1941. The Altied code name

47 (Left) This photograph of a Mitsubishi G3M Naval Type 97 Attack-Bomber shows clearly the twin fins and rudders and the distinctive taper of the wings.

Engines

5pmm

Height

Model 11: Two 1,530-h p Mitsubishi Kasei II air-cooled

radials

Model 12: Two 1,530-h p Mitsubishi Kasei 15 air-cooled

radials

Models 22, 22A, 22B: Two 1,800-h p. Mitsubishi Kasei 21

air-cooled radials.

Models 24, 24A, 24B, 24C, 24J, 34 34A: Two 1,825-b p. Mitsubishi. Kasei 25b air-cooled radials Model 36: Two 1,825-h p.

Mitsubishi Kasei 25b Ru aitsgooled. Endulls

25 m (82 ft).

G4M1, M2; 20 m (65 ft 7 m) Length

M3: 19.3 m (64.ft) 6 m (19 ft 8 in)

Wing area 78 J sq m (841 sq ft) Weight empty G4811: 6,800 kg (14,991 lb) M2 8,160 kg (17,990 lb)

> M3: 8 350 kg (18,409 lb) G4M1: 9,500 kg (20,944 lb)

Weight loaded M2, M3: 12,500 kg (27,558 lb)

Chew Seven

Maximum speed. G4M1: 231 knots at 4,200 m.

(14,000 fr)

M2: 236 knots at 4,600 m.

(15,000 ft)

M3, 254 knots at 5,150 m. (17,000 fb)

170 knots at 3,000 m (10,000 ft) Cruising speed

> (G4M1) or 4,000 m (13,000 ft). 4M2, M31:

Maximum range | G4M1; 3,256 nautical miles

M2: 3,270 nautical miles M1, 2,340 nautical miles

Service celling. G4M1; Not known M2, 8,950 m (29,350 ft)

M31 9,220 m (30,250 ft) Hombeloud.

G4ML. One 800-kg torpedo or equivalent weight of bombs.

M2, M3; One 800-kg torpedo or up to 1,000 kg of bombs.

Armament Model 11, Model 12: Four 7.7-min. Type 92 machine-guns in

forward, dorsal and beam. positions; one 20-mai, Type 99 Model I cannon in fail turret Models 22, 24, 34 and projected Models 25 and 27: I our 7 7-nsm 48 Mesubish G4N2 Naval Type 1 Attack-Bomber Model 24 This cactured specimen was one of a batch modified to carry the Onva (Cherry Bioseom) plot the designation G4N2e. The Atles used HETTY—Id versions



Admiral Nagumo's Striking Force had dropped

It these attacks were made in face of
tken opposition. Once the Allies
to hit back, the G4ML became
a case with which it could be shot

The fact tanks, but this equipped with the new
The shortcomings of the shortcoming of

troduced a test months taler, proved

List and crew went into production in the autumn
the G4S13 or Model 34, but only some
that this version were completed, as
in 2,300 G4S13 and G4M2s
of the G4M were put into

Minds E22A: Version of G4M2 with four 20 mm.

Sersion of G4512 with Type 99

Model 22 Fourteen aircraft only Model 24A Similar to Model 24, but armament

24B. Similar to Model 24, but armament in Model 22B. Late production aircraft carried in to sortal enalls.

Model 24Ch Similar to Model 24H, but one of two machineiguns in forward position was 13-mm. Type 2: Late production models carried air-to-surface tailar.

Model 243. Production aircraft of Model 248 or 24C series modified to carry. Ohta piloted missile and redesignated G4M2e. Poor handling qualities and C4st y shot down.

Model 25: Second prototype of G4M2a with Kasei 25 replaced by Kasei 27 engines. One Esperimental aircraft only Model 26: G4M2 or G4M2a strframe with Kaser 25b Ru turbosupercharged engines. Designated G4M2c. Two experimental aircraft only

Unnamed model: Prototype G4M2 with Kasei 21 citgines replaced by Kasei 25b (not turbosuper-charged). One aircraft only

Model 34; G4M3. Kaser 25 engines. Self-sealing tanks. Tanks and crew protected by armour

Model 34A: Proposed version of Model 34 with modified armament, intended for anti-submarine patrols and as transport aircraft. Not put into production

Model 36: G4M3 airframe with Kasei 25b Ruturbosupercharged engines. Still in experimental stage at end of war.

### Mitsubishi G6M1, G6M1-K, G6M-L2

Official des. G6M1: Naval Type I Wing-tip.

Convoy Eighter

G6M1-K: Naval Type I Large

Land Trainer

G6M, L2: Naval Type I Transport.

Amailt

Mined code name (Betty)
Manufacturer Mitsubi

Description

Mitsubishi Jukogya KK

Version of G4MI bomber intended as long-range escort lighter and used after modification as trainer

and as transport aircraft

Two prototypes of the G4M1 attack bomber were built in 1939 and 1930 to a specification which called for a maximum speed of 215 knots and a range without bomb-load of 2,600 nautical miles. The second prototype exceeded these requirements by attaining a speed of 240 knots and covering 3,000 nautical miles. Since the navy had no escort highler capable of accompanying such a bomber to its objectives, production was held up while an attempt was made to develop one from the G4M1. riself. Thirty G6MI heavy fighters, each armed with four 20-mm cannon and one machine-gun, were completed, but they proved too slow for their intended task. The G6M1 was therefore modified for employment as a trainer, and later a version with further modifications was used to lift paratroops. Inappearance the G6MI resembled the G4MI, but the bomb-buy was faired over and a gondolahousing two 20-mm cannon was slung under the fusclage. The Allies applied the same code name to

all versions of the G4M and G6M

# Mitsuhishi J2M Thunderbolt

Hender J144

. . .

Peright feeded J2M

1

Market direct

Maximum speed J2582 322 knots at 5 fee

MID [E]

5 11" knots at 6 800 m. autg)

THE RESIDENCE

13 41,760 m (30,000 ft)

12M5 - 11,230 m (37,000 ft):

Two 60-kg bombs could be

AND THE PARTY NAMED IN

Range An endurance of not less than

Bumb-lund

J in place of drop-tanks

12M2. Two fuschage-mounted

Type 97 machine-guns
a two wing mounted 20-mm
lype 99 Model 1 cannon
12M3, 5, 6. Two Type 99 Model 1

Type 99 Model 2

Worker Cannon, all wing-mounted Model 21A). I our 20-mm. Type 99 Model 2 cannon, all

ming mounted

and an unknown number of 1°MS, by the 1

### Mitsubishi 38M (Ki-200) Swinging Sword

Official des.

Rocket Powered Intercentor Figure

Allied code name None

Manufacturer Seven prototype arreraft bu his Monte but by Manufacturer Seven prototype arreraft bu his Monte but by Manufacturer Seven prototype arreraft bu his Monte prototype arreraft bu his Monte but by Manufacturer base monte but by Manufacturer but by Monte but by Manufacturer by Manufacturer but by Manufacturer but by Manufacturer by Manufacturer by Manufacturer but by Manufacturer by Manufacturer

Span
Length 6-04
Height 2.
Weight empty
Weight loaded



Crew. Maximum speed

Ciric.

900 km h at 10,000 m (550 m.p.t.

at 33 (PRESE)

Renter

The JsM1 could remain under

power for \$1 minutes 12,000 m (39,500 ft

Service coding. Homb-load

None:

Arminiment.

One or two wing-mounted 30-n

Type 5 cannon

In 1944 the Japanese government acquired manufacturing rights in the Messerschmitt Me 163B thort-range interceptor fighter and the Walter HWK 119 419 finket motor which projected it. A set of technical drawings was lost on passage from Germany but a rocket motor and an instruction manual for the Me It H arrived safely. On the strength of these the development of a rocket-properled interceptor. fighter as a joint-service senture was entrusted to Mirschola. A mock-up was completed in September. and seven prototype aircraft sime built. The first crashed on its first powered flight in July 1945, but the aircraft printed capable of combing to 10 000 metres. in three and a half monites and was very fast. A production programme was begun before the endof the war, but no aircraft of the production series were completed. Two versions, the JSMI with two stem in cannon and the JRM2 with one cannonreplaced by a lifternal fact far ks, were to have been + an factured

### Mitsubishi K3M2 and K3M3

Official des.

Model 1, Model 2 Albed exide name. Pinc. Viamulacturery Mitsubishi Jukomo KK Aschi Toker Denki KK Nh Watanabe Tekkosho Description Envisement or souscater parasolwir g monoplane used as trainer. and sometimes as communications. and light transport aircraft. Logina : 340th p. Hitachi Amakaze II or Gub p. Nakapma Ketobuki 2 KAT.

Naval Type 90 Crew Trainer

art-cooked radial Noon. 15 78 m (51 ft 9 in) Length 9.54 m (31 ft 4 m) Height 3 82 m (12 ft 6 m) Wing area 34.5 sq m (371 sq ft)

C twelve the Western y a hoence-built in 1930. The K3M4

### Mitsubishi (Dai-Ichi Kaigun Kokusho) 13Y1, 13Y2

Otherst des.

Naval I

Allied cride name 1

Manufacturers

Materials of Laterson KK.

ha gan kekeshe raft built by

Description

Transport versions of G1M1 and

Lechnical data

[3Y] As for G3M2 except that Mitsabishi Kima 3 lab, or laden and - Acre approximately 16 (b) and 7,642 kg -- pectively, parumum the order of 180 to ic colling about 40 m (24 500 ft), armament one much ne gun ..... Cr35/12 with Kinsei ent that arriument

-mm. Type

42 much ne gur

lk fore the war of 1941. S a number of Mitsubish G3MIs were used by the armed forces as transport. arteraft. In addition, twenty or more GIM2s were adapted for civil purposes and used for demonstration. Hights or by Suppon Koku or Dai Suppon Koku on subeduled routes. Some of these remained in use during the war. They were supplemented by a number of G1M1s and G1M2s mod field by the 1st Naval Air Arsenal (Dar-Ichi Kaigun Kokusho) Arreraft similarly mod fied, and known respectively as the L3Y1 or Naval Type 96 Transport Asterall Model 11 and the L3Y2 or Naval Type 96 Transport Aircraft Model 12, were delivered to naval air. transport units. These were given by the Albes the code name Tima. The Y in the short designation



to 1st Naval Air Arsenal at

Mitsubishi ki-15-II and C5M2

Official dev-

Manufacturer

Description.

Ingini

Span

Length

Height

(rrw

Wing area.

Weight empty

Weight loaded

Crassing speed

Allied ende name Rit

through the modification way val Air Technical Arsenal

Ki 15 II: Army Type 97 Command

Reconnaissance Aircraft Model 2

I wo-seater low-wing monoplane

used by both army and navy for

Ki 15 II; 900-h p. Army Type 99

C5M2: 950-h p. Nokajima 5akac12

Model F (Mitsubolu Ha 26-1)

C5M2 Naval Type 98 Recon-

Viruraft Model 2

Mitsubishi Jukogyo KK

Philosophy for or manualist

Ki 15 IL 3 34 m (H ft)

C5M2: 3 4/5 m (11 ft 4 in).

Ki 15 H: 1,592 kg (3,510 lb)

Ki 15 H 2,189 kg (4,826 lb)

C5M2+1,715 kg (3,781 lb):

C 5M2 2,345 kg (5,170 lb)

C 5M2+ 263 knots at 4,550 m.

Not known. The Ki-15 Lis.

credited with a cruising speed of

320 km h (about 200 m p h ) at an

(317 mph at 14,000 ft).

unspecified height.

ir-cor ed radial

ne-cooled radia.

12 m (39 ft 4 (b))

8.7 m (28 ft 7 in).

Two

Maximum speed Ki-15-H: 510 km h at 4,330 m.

(15,000 fr)

20 4 sq m (219 sq ft).

Range

Not known. A leading authority gives the range of the C5M2 as 600 nautical miles, but neither this figure not the figure of 590 miles. with a 330-lb bomb load given in the British official history would seem to be correct. There is: evidence that the C3M2 could operate at or about 400 miles from its base, so its range can scarcely have been less than 800 miles. The Ki-15-I is said to have had a range of 2,400 kilometres, or roughly

Not known, but probably about 11,000 metres or 37,000 feet

Bomb-load

None One flexibly mounted 7-7-mm.

Service ceiling

Armament Type 89 or Type 92 machine-gun

firing to the rear

1,500 miles

The precursor of the Ki-15 II and the C5M2 was the K1-15 Lor Army Type 97 Command Reconnaissance Aircraft Model 1, which was also manufactured for non-military use as the Wild Goose I Communications Aircraft. The K1-15-II was introduced in prototype. form in 1938 and put into production in 1939. The C5M2 was substantially the same aircraft as the Ki-15-II, except that it was powered by a different engine and carried a quantity of naval equipment which added considerably to its weight. Production ceased in 1940, but both versions were still in first-line service on the outbreak of war with the Western Powers in 1941, It was the crew of a C5M2 of the 22nd Air Flouilla based in southern Indo-China, who spotted the Prince of Wales and the Repulse off the cast coast of Malaya on 10 December, 1941, and directed the flotilla's bombers and torpedo-bombers towards their objective



## Mitsubishi Ki-21-I, Ki-21-II

Cifficial des.

Army Type 97 Heavy Bumber Model 1A, 1B, 1C, 2A, 2B t at the rate Sally takes called Jane, Gwent Mitsubethi Jukopyo K.K. March Liters Nakajima Hikoki KK

win-engine mid-wing monoplane State of the used as heavy bomber and sometimes as framiport or communi-

cations interaft.

Ki 21 J Two 850-h p Army Type Lagracy

97 (Nakapina Ha-5 KAI)

arr-cooled radials. Kr 21 II, Two E450-h p. Army

Type 100 (Mitsubishi Ha 101)

air-cooled radials. 22.5 m (73.f) 10 in) Square. 1.0 16 m (52 ft 6 in) Display 1 4 35 m (14 ft 3 in) 11: 4:85 m (15:ft 11 m) 474 6 sq m (749 sq ft). Mary Mary

AND SERVICES T 4,491 kg (10,342 lb) 11, 6,070 kg (13,302 lb): the his a red 1 7,472 kg (16,517 lb)

11, 9,710 kg (21,407 (b)

f true Normally five, but two additional gunners could be carried.

Transport or communications version, crew of four with early or up to a ne passengers.

Max = 30 speed: 1, 432 km h at 4,010 m (268 m p.h.)

at 13,000 for

11, 468 km h at 4,720 m (302 m p h at 15,300 (t)

f s spens I Not known

H. 380 km h at 5,000 m (236 m p h.

4t 16,500 ft)

\$1 a ... 1. 1,500 to 2,700 m (930 to 1,680) miles), according to load

11 Up to 2,700 km (1,680 miles)

METTER BESSE T # 400 m (28,200 ft):

II: 10,000 m (33,000 ft) 5 . . . . . . . . . Normal, 750 kg, maximum,

1,000 kg

#### Armmment

inceguns in forward, dorsal. and ventral positions Model 1B. Four 7.7-mm. Type 89. hine-pairs in forward, dorsal, al and tail positions and one to port and starboard through operangs in sides of fave uar IC and 2A Soc 7 7-mm Type 39 muchine-guns in forward. forsal, ventral, tail and beam P+ P5 7 Model 2H; Five 7 7-mm. Type 89 n forward, ventral m positions and one Type I machine-gun in Total Contract

Model IA. Three 7 7-mm Type 89

The KJ 21 first flow in prototype form in December 1936. Many mod treations are made before it west into production. Contracts to then placed with Mitsubishi and Nakarima hetween them completed well over 750 aircraft of the la, th, and It series before production of the ka 21.1 was suspended in the early part of 1941. The Ki-21 II, hirst fested in the spring of 1940, was manufactured soiely by Mitsubishi. More than 1,200 aircraft of the Ha and Hb series were completed, the last in the autumn of 1944. When Japan entered the Second. World War only a few Ki-21-Is were still in first-line service, most heavy bomber units having rearmed by that time with the Ki 21 II. Much liked by Japanese autmen because it was pleasant to handle and easily maintained, the Ki-21 did good service in the early months of the war, but became a notoriously easy prey for hostile fighters once the Albes took its measure. Repeated attempts by the authorities to improve its armament did not save units equipped with it from heavy losses, but so much difficulty. was experienced in finding a fully acceptable. successor that it remained the army's standard heavy bomber long after its shortcomings had become apparent. A modified version, the MC-21, was used to a limited extent by Dai Nippon Koku

Ich to carry passengers and supplies on behalf of the military authorities to destinations in Manchuria and occupied China, and towards the end of the war a number of surviving bombers were modified and used as transport or communications aircraft by units in the held

### Mitsubishi Ki-30

Army Type 97 Light Bomber Official des. Affred code name. Ann. Mitsubishi Jukogyo KK Manufacturers Tachikawa Dai-lehi Rikugun Kokusho Description Two-scater single-engine light bomber of mid-wing monoplane configuration with fixed spatted. undergarriage 850-h p. Army Type 97 (Nakajima) Lingtne Ha 5 KAI) air-cooled rad at 24 55 m (47 ft 9 in) Span 10 34 m (33 ft 11 in) Length Height 3 645 m (12 ft) Wing area 30 6 sq m (329 sq ft) Weight empty 2,230 kg (4,916 lb) Weight loaded 3,322 kg (7,324 lb) (rem. Two Maximum speed: 432 km h at 4,000 m (263 m p h, at 13,000 ft) 380 km, h (236 m.p.h.) Cruising speed 1,700 km (1,060 miles) -8,500 m (28,000 ft): bervice ceiling. Homb-load Normal, 300 kg; maximum, 400 kg Armament One wing-mounted and one rearward-firing 7.7-mm. Type 89 machine-gun

The Ki-30 first flew in prototype form in February 1937. Production began in the spring of the following year. About 640 aircraft of the production series were completed by Mitsubishi between 1938. and 1940, some 70 by the First Army Air Amenal. (Fachtkawa Dai-Icht Rikugun Kokusho) between 1939 and 1941, Ki-30s were used by the 5th Air Division to support the Fourteenth Army's occupaTHE PROPERTY OF MINE 27 A THE TYPE AT METTING BUTCHE none to the two to sell and known to the A seas. where I the was a was been good by more and its a e grand a regard was the proportion of the

The state of the s THE ASSESSMENT LOCAL THE STATE OF THE STATE I we had then the the that he had a place in MARKET WE TO SECTE A WIT A WAY

tion of the Philippines towards the end of 1941 at 1 early in 1942, but soon afterwards surviving aircr 1. of the type were relegated to training units or otherwise disposed of.

#### Mitsubishi Ki-46

Ki-16-I, II, III; Army Type 100 Otheral des. Command Reconnaissance Aircraft Model 1, 2, 3 Ki-46-II KAI: Army Type 100 Operational Training Aircraft Kir 16 HLK Mr. Arms Type 100: Air Defence Lighter

Allied code name 13 mih

Manufacturer. Mireston Jerogra KK Larve agrached perfect acce Description

outer att de gred fer strate ic the maissance and considered versions need a leady transmit and

as high-altitude fighter

1: Two 900-h.p. Army Type 99 Engines Model I (Metsubishi Ha-26-1)

air-cooled radials.

II: Two 1,050-h p. Army Type I (Mitsubahi Hn-102) nir-cooled

radials

III: Two 1,500-h p. Army Type 4 (Mittubethi Ha-112-II) air-cooled

radials.

14-7 m (48 ft 3 in) Span 11 m (36 ft 1 in) Length 3-88 m (12 ft 9 m) Height 32 sq m (344 sq ft) Wing area 1: 3,379 ks <7 (1) () 1 Weight empty I[ 12/1527 [744b)

[[[] 193] vg c8.44/ fbr 1: 4,822 kg (10,631 lb) Weight loaded 11: 5,050 kg (11,133 lb)

111: 5,722 kg (12,619 lb)

Normally two, but Ki-46-II k Al Crew

was three-scater

Maximum speed [1 530 ker a, 1 4 000 p 436 r p h at 13 000 ft).

Hotelstrant Section (325 to p)

, r 19 (00 ft) III (Bon Brit 1000 c) (891 a ph

at 20 006 (t)

So the unsafer discrete what Cruising speed

(i) ( f k) (46 ff ss x 400 k) b at (1 int ) (256) (p. ) at 13 000 ft.

-1  $\cdot$  1

, som to he have "good Act, the create the way to the to the transfer 

Service percent

Romb-load Armament.

No assessed

None. I and II One flexibly mounted 7 7 mm. Tune 89 machine-gun-

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THE RESERVE AND DESCRIPTION OF THE PERSON NAMED IN

1 1 2 1 7

. .

The Ka 44 mas designed by Tomio Kubo of Mitsubishi, with assistance from the Aeronautica" statute of the University of Tokyo, tr

on hinst successor to the > sember 1919 It falled to stepulated speed but may appre at temporary Japane '1

fortheaming version to be powered by their Ha 102 engine with two-stage supercharget would reach 600 hillometres an hour without difficulty. Ti he was that only some thirty to forty production of the K1 46 I series were completed and that

this up to 35 OL - - - -

> 65 III, powered Chood fee ween 1942 to 11 was used sensory was an but a find had

same the l

\rms. [ - IIb but mels a etwon, powered by Ha 112 II seret argers and úcsij Ki 46 IVb were in a rhough I with out stactions Mitsubishi Ki-51

At ny Type 99 Assault Aircraft Official des. Altied ende name 50

Mit Jukogyo KK Manufacturers Dai-Ichi Rikugun

N .....

I whose-engine low-wing Вексприна ne used as ground-attack 1 faction reconnaissance aircraft

Army Type 99 Model 2 egimé hi Ha 26- II) air-cooled

Npun . 5 I m 130 ft 3 int Length 9 111 Height 24 j m (259 sq ft). Wing area. - Ke (4-129 lb) Weight empty kg (6 [69 [b] Weight loaded

Crew. at 3,000 m (263 m p h Maximum speed

\* 1 [[] km (660 mnest Range Service celluly

Homb-load For r twelve 15-kg bombs O - temm rearward-firing Type Arttaiment to wing mounted 7.7-mm r 12 7-mm, Type I

The Mitsubishi Ki-51 was derived from the Ki-30. light bomber and designed by the same team. The specification called for a small, handy version of the Ki-30 suitable for giving close support to troops and able to operate from forward landing-grounds too. primitive for high-performance aircraft. Engine and condipit were protected by armour against fire from the ground. At one time separate ground-attack and tactical reconnaissance versions were contemplated. However, after testing prototypes of both versions the military authorities told Masubishi to complete the aircraft in ground-attack form but make provision for cameras to be installed in the held, so that units would be able to use any Ki-51 of the production series in either role. Notwithstanding its modest performance, the aircraft proved so successful that it remained in production from the beginning of 1940 until barely a month before the Japanese surrender. Mitsubishi completed some 1,500 aircraft of the production series; the First Army Air Arsenal (Tachikawa Dai-Ichi Rikugun) Kokusho) about 900. An advanced version. designed by Mansyu Hikoki Seizo KK and designated the Mansyu Ki 71 was tested in prototype form but not accepted for production

### Mitsubishi Ki-57 (MC-20)

Official des.

Navul

Army Type 100 Transport Aircraft Military Model I (K) 57-1), Model 2

(ki-57-II)

Naval Type O Transport Aircraft Model 11 (alternative)

designation, L4M1) MC-20-1, MC-20-II

Chill Allied code name Topsy

Mitsubishi Jukogyo KK Manufacturer

Twin-engine monoplane used as troop-carrier, freighter and

passenger atteraft.

Ki-57 I, LAMI, MC-20-I: Two 850-li p. Army Type 97 (Nakajima

11a-5 KAI) air-cooled radials Kr 57-11, MC-20-11: Two 1,050-h p. Army Type 100 (Mitsubishi Ha-102) air-cooled

radials







### Mitsubishi Ki-67 Flying Dragin

married president and the first control of

Official des. Atlan Type 4 Heavy Romber

A wid cod Manufacturers

Description

Marchet Langer KK 

The second secon

Name of Street Length

Height

24

Larriet (mixtels 4-27 m.) Later models 4 Post 194

15 log area

20.1 sq m (754

The geneus of the Ka-57 was a tentative designi-2m V(1c 2 m 1777

3 h. that a nasarteer a rura I why? the deservoir t fermi the h

LARREST SECURITS POPULAR IN IN IN. A motion It, that It It was remean to the government sponwired Dat 5 ppon Koku K.I.

on exceed a tree has sent to cover both Do-Betown April time

\_\_\_\_\_\_\_\_\_

The Chine Mt. "It have delivered -

and by the are in or that he could been a few to ...... Later to the rays Rev C. Is fare Malana escorted by highters and actively

\_\_\_\_

and on Hand IS February Lat.

h ta British Hutts and I it can be higher any the the

F ST. F & b.

Dicks 57 Hor Mt. 20 H. no forts k cometres. an bour faster was strodoced in 1942. About 44. of these gireraft were delivered to the arms or Da-Nipport Kisku between the latter part of that year. and January 1965. Both the Kir 57 Land the As 5° Il carried a crew of four and up to elever. pulse pers or paratroops. The range of both a terall was of the order of I Still to You and we're to lead

I man er gine mid wing . . 1 1 4 1 ) ( The second second 4 2 3 15. Alexander and the second 1 days 1511

Je man

Q.4." evel 31 (fet WETTER CONTROL Homb-fred 5 01 2,1 5 11 1

Larger magnity. The Armament.

> History Drawns, was traffed white Japan a thithe Woutern Powers



weeks the Ka Applied Nevict forces base rice prototypes #51 were, however, not reads until will Unitest, the aircraft the for one of its to tary authorities had some ETNEW ACL & Court her 1 Eventually they version, the Ki 67 Lor Heavy Bomber Model I, should be production but that all aircraft with piet Dan 160 should be fitted with her could be used either to topping strikes. The nass Millione but the arms n its used for 67s against. # Lormosa in 1944 and at and the state of t tirg power with a powerfuthe I being Dragon a. ports, that cassas ses suffered before r - of forced the author her preat many of the 700 aircraft produced rews who had to hattle against

Hikoki Seizo and the staff of Dai-Ichi Rikugun Nokusho, three prototypes powered by Mitsubishi Ha-112 II radials were built. They received the Jesignation Ki-71. Their performance was disappointing. The Ki-71 did not go into production, but the Aiber learned that an advanced version of the Ki-51 was under development. They gave it the kode name I dna

### Mitsubishi kf-109

Official des.

Kt. 109 Army Experimental Interceptor Eighter

Manufacturer

Allied code name (Peggy).

Mitsubahi Jukogyo KK Heavy fighter version of K1-67

heavy bomber

Technical data

Description

As for kit 67 except that one 75-mm. Type 88 cannon was fitted in the nose, bomb bay, dorsal turret, and beam positions. for guns were omitted; defensive armament was limited to one. 12.7-mm. Type machine-gun inthe fail, crew was reduced to four

Musubishi ki-71

Different des. Kt-71 Army Experimental Factical Reconnaissance Afferalt

All red code name. Edna-Manufacturer.

Description

Three prototype aircraft built by Facts kawa Dardehi Rikugun

Best gation

Advanced factical reconnaissance

servion of K. 51 not put intoproduction.

Fechnical data See 3, 51

A high-performance tactical reconnuissance version: Table K. 51 was proposed in 1941. As the outcome. f a collaboration between engineers from Mansyy

developed from the Mitsubishi Kt 67 heavy bomber, A modified Ki 67 with a 75-millimetre cannon in the note was tested in the following year and received: the designation ki 109. The military authorities then ordered forty-four aircraft, of which the first half were to be powered by Mitsubishi Ha 104 radials and the second half by Ha-104 Ru radials. with exhaust-driven turbosuperchargers. As things turned out, only the first twenty-two arreraft were completed by the end of the war, Without turbosuperchargers, the Kt 109 attained a speed of 550 kilometres an hour (about 324 miles an hour) at 6,000 metres or roughly 20,000 feet.

Others of the Army Aeronautical Research Institute

dealing with American long range bombers, might be

suggested in 1943 that a heavy fighter, capable of

Above: Mesugists Ki-67 Army Type 4 Heavy Bomber Purpown to the Alives as PEGGY and to the Japanese as the Hirys, or Frying Dragon, the Ki-67 was in service from Orazbor 1944 until the end of the war.

# Nakajima Aircraft

### Nakajima A6VI2-N

Naval Type 2 Floatplane Eighter Official des. Mindel 11

Allied crafe name. Rufe.

Nakasima Hakoki KK Manufacturer Description Seaglant version of Mitsubishi

A6M2 Zero Fighter

950-b p. Nakapma Sakat 11 Eagler.

air-con ed rad al-12 m (39 ft 4 m) figure. 10.1 m (1) 6.5 Length 43 m ((4 ft 1 m) Height 22 4 sq m (242 sq ft) Wing area 1 912 kg (4,215 lb) Weight coupty. Height Junded 2,460 kg (5.423 lb)

Crew. One

Maxtenum speed 235 knots at 5 0/0 m (16 500 ft)

Criming speed ItO knots

Range

Normal, 620 nautical miles maximum, 940 nautical miser-

bertice ending. 10,000 m (33,000 fg) Bumb-load Two 60-kg bombs could be

Latticid

Armamini. Two fusclage-mounted 7.7-mm

Type 97 machine guns and two. using mounted 20kmm. Type 99.

10 10

Seam after work on the Nawanishi N1K1 scaptane. righter was put in hand it became apparent to the naval authorities that the aircraft was not likely tibe ready for some considerable time. To fill the gapthey instructed Nakajima to design a seaplane. version of the Mitsubishi A6M2 Zero Fighter A modeled A6M2, without folding wing tips and with undercarriage replaced by a large central float, was: tested on the first day of hostilities against the Western Powers and received the designation A6M2 is Production began almost immediately. In the following May a small force, covered and supported by the eatner forces which went on to I ght the Battle of the Coral Sea, seized Tulage in the Solomor Islands and established there a scaplane anchorage at which the first AAM2. No to be used in combut were based. Tulage was, however, captured. by the Allies three months later. Thereafter the At-M2 N was used forgely in a defensive role for intucted was not particularly suitable. It was also



### Nakajima B5N2

Naval Type 97 Carrier-borne Official des. Attack, Box, ber Mixfel 12. Affired code name 3

Manufacturers. Nakamba Hanar KK ARTET HELDERICK

> cha Junda Kaigun Kokusho Three-seater low-wing monoplane

> > torredo ers and land

P. C. to ma Sakae [1]

Your. Long. Ftr. no AND DESIGNATION OF THE PERSON NAMED IN 11. Warmer ...... 1 600

Description

Max mount ( F the last HAME

Service cesting Bomb-load

Armament

The second second (10 (00) fr) 1 S28 nauto-al miles, mum, 1 0°5 nautical miles 8,260 m (27,000 ft)

One 800 kg torpedo or equivalent weight of bombs.

One fleubly mounted 7.7-mm Type 92 machine-gun firing to the 7045

he Nakajima BSN2 achieved pseudonymous fame. \* December 1941, when carrier-home torpedoknown to the Western Albes as Kate played g part in cripping the United States Pacific. t Pearl Harbor. In the battles of the Coral Midway Island and the Santa Cruz Islands in of year, BNN2s damaged the Lexington. ) that she was afterwards disabled by of expronons and sunk by her own side. med buts on the Forktown (sunk a few days later. benurine), and sank the Horner The B5N2 e used in an offensive role until 1944, alted to the less exacting task of escort. Towards the end of the war a few 15502s were used as substitutes for the RSNL & developed from their forteninger, the BSN1. is of the BYNL was a specification of cated for a monoplane with a span of e than In metres with wings extended and 5 metres with wings folded, capable of carrying an-NOAdogram torpedo at speeds up to 190 knots and of

Official des.

remaining airborne at 135 knots for not less than four hours. Katsun Nakamura of Nakajima headed 4 fears which produced by the end of 1936 an aircraft whose performance far exceeded these requirements. The B5N2, only fractionally faster. but with a more reliable engine, was introduced in 1939. About 1,150 B5NIs and B5N2s were: manufactured by Nakajima, Aichi and the 11th Air Arsenal (Dai-Juicht Kaigun Kokusho). between 1936 and 1941.



Naval Carrier-borne Attack-Bomber Heavenly Mountain Model 11, Model 12, Model 12A

Allied code name Jill

Manufacturer Description

Ingine

Span

Length

Nakajima Hikoki KR Three-scater carrier-borne torpedo-bomber of low-wing

monoplane configuration B6N1: 1,800-h p. Nakajima Mamoru II air-cooled radial B6N2; 1,850-h p. Mitsubishi Kasci

25 air-cooled radial.

Height

Wing area Weight empty

Weight Jouded Crew

14 894 to (48 ft 10 to) H6Nd: 10 365 m (34 ft) B6N2 TO SUSTICION IN NOTES B(%) + (12.002.1) BUSSER SENCIERO 2 sq m (400 sq ft)

B6N1: 3,223 kg (7,105 lb) B6N2: 3,010 kg (6,616 lb) 5,200 kg (11,464 lb)

Three



116 117



Maximum speed 1 a set

f to speed A HOLD ABL'A

Maximum range

Service cestury

Homb-land Armanyai. ----80146. VONU III (44, 700 (1) One 100-kg torpedo or an equipaient weight of bombs Models 11 and 12 One 7.7-mm I school gun fitting

2 2)

1) "

----

7 73

bring to the rear Model 12A One 7.7-mm Type 97 reschine gun firing through a sentral tunnel and one 13-mm Time 2 machine-gun firing to the -

The same of the last

the new ve .... and the end c Kaser 25c eng projected BANT or Management 

units were re-equipped with BANs in time for the Battle of the Philippine Sea in the summer of 1944. hat the carrier I suffered crippling lower. During the last two years 

and the section of th Mast of the Bull's healt after the summer of 1943 went into action against hopeiess odds or were German .

\* ". . THINK THE APPLIE F 7 4 74 11 4 7 4 7 7 1 -- A - Co name was Jak

62 (Below) Nakajima C6N Naval Carrier-borne Reconnaissance Aircraft Saium (Painted Cloud). Intended in the first instance to reconnotine from carriers and used in modified. form as a might-fighter, the C6N was known to the Alves as

### Nakajima C6N Painted Cloud

4 4 5 4 \* me Romm . . I Model II 1 1 s ime Myrt. Nakajima Hikoki KK Single-engine low-wing monoplane Description for long-range reconhut used and the second second Sakajima Homare 21. radia1 . . . 6 ft 1 m) 13 (1) . . . The same of + 19,921 lb) → hree [40 . Hatteet.

Normal, 1,613 nautical miles: stransmisser. 9 656 passessed analys-

9 m (35,250 ft)

Une 7 92-mm. Type 2 - Total 12

g/11

The Nakajima C6N Sainn, or Painted Cloud, was designed to reconnoitre from carriers at ranges bearing the reach of respirate to what from accompanying cruisers or battleships, so that torpedo-bombers would not have to be misemployed. as long-range reconnaissance aircraft. The prototype first flew in the late spring of 1943 and production. began about ten months later, after nineteen prototype or pre-production aircraft had been completed. The CoN1 Model 11 was first used to studow a hostile fleet on the eve of the Battle of the Philippine Sea in the summer of 1944. A few CoN's were modified as night fighters and given. the designation CoNLS. A torpedo-bomber. version, to be called the Model 21, was projected. but not put into production, and experiments were made with a version powered by a turbosupercharged Nakajima Homare 24 engine. Other variants, including an all-woode - C6N6, were planned but not built. About 460 C6Ns were completed between

### Nakajima E8N2

1943 and 1945

Official des. Naval Type 95 Reconnaissance

Scaplane Model 2

Allied code name Dave

Manufacturery

Engine

Normallinkikk

K we reach such his Description I server adapted to a

scaptane of biptane configuration.

with magic central that.

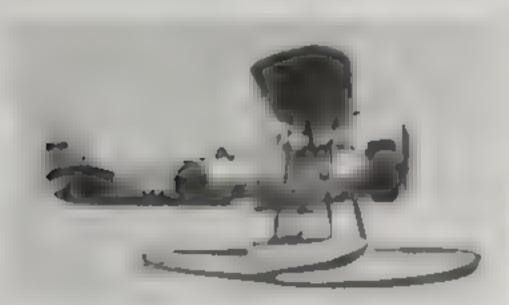
630-h p. Nakajima Kutobuki 2

KAI air-cooled radial

10 98 m (36 ft) Span



53 femore flamental EBN Naval Type 95 Reconnessance. Seeparte Designed as a spotter and general reconnessance sence arotat for launching by cataput from betteships crusers and seaparte tenders. 4 first field in 1934 and numerical production until 1940. The Alies gave 4 months of the Code name GAVE.



Longth 0 82 m (28 ft 11 m) Height 3 64 m (12 ft 7 m) Wing area 26 5 ng m (285 ng ft)

Developed from the Nakauma 1793 of 1934, the 1792 had a maximum speed of 162 knots at 3 feat metres, a crusing speed of 100 knots and a range of 455 hautical more. Production craved in 1946 had the 1792 continued to be used during the first year of the war between Japan and the Western Powers at a sporter for at ips' guns, for general recommandance and occasionally as a dive homber carrying two Makingram bombs. After its replacement in first line units by the Aichi I 11A1 and the Missohishi F 1347 if served at a communications arecraft and tometimes as a trainer, About 750 J 1841; and 1860.

Mountain Recess Modified Mode

12 Transport Ascerate

## Nakajima G5N2-J

Official des.

Alteré cuie nome	10
Mamilacturer	Nakajima Hikute kik
Description	Large mid wing monoplane
	intended as long-range beavy
	bomber or torpedo-bomber and
	used in modified form as freight-
I must	CHITICA
Engines	Four 1,530-h p. Mittubishi Kase
6	42 au-cooled radials
Span f	42 (4 m (138 ft 3 m)
E-regeth Management	31 02 m (f0) ft 9 m)
Vingares	201 8 sq m (2,172 sq ft)

Hefore the outbreak of war between Japan and the Western Albes, bulkapens made an unsuccessful attempt to develop for the naval authorities a heavy



on the Dong as DC 4E tran

The tole

The DX 4E ma

The tole

The t

ever, new to the Japanese aircraft industri

### Douglas, Eventually (

(+- + -

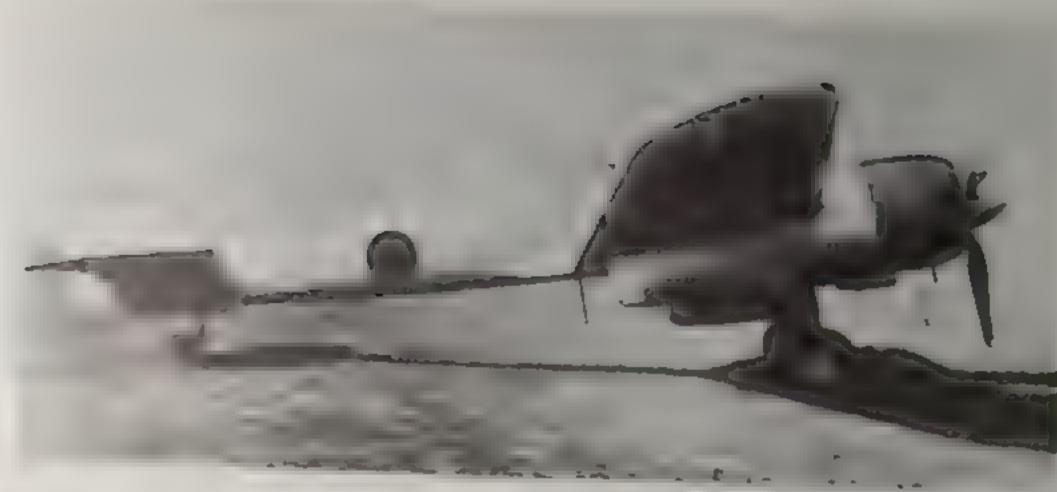
The two G5N2s, and also two G5N1s updated by the installation of Kaser 12 engines, were then taken over by the navy as freight-carriers. The Allied code name for the G5N2 was best need in the expectation that it would turn out to be a bomber

Naval Experimental 18, Shi

## Nakajin a G8N Mountain Range

	Mach-Bomner Mountain Range
Allied cride name	P
Manufacturer	1-
Description	The state of the s
TACHET INTERIOR	
	seathern analysis
Engines	Four 2,000-h p. Nakapma Homare
	24 air-cooled radials
Span	32 54 m (106 fr 9 m)
Length	22 935 m (75 ft 3 m)
Height	7.2 m (23 ft 8 in)
Wing area	112 sq m (1,206 sq ft)

The Nakajima GBN Renzan, or Mountain Range, was designed to meet a specification which called for an aircraft with a maximum speed of 3.00 kilogram homb-load or twice that distance with a 4.000 kilogram homb-load. Four prototypes with turbosupercharged Homare 24 radials were built by the autumn of 1944 and an output of forty-eight aircraft by September 1945 was predicted. One of the prototypes was destroyed on the ground by United States naval aircraft, and a shortage of raw materials prevented Nakajima from giving effect to the production program me



Nakajima JINI Official des JINI -C: Naval Type 2 Reconnamiance Afferofi-JINI-S, Naval Night-Fighter. Moonlight Model 11, 11A Alled cude name. Irving. Manufacturer Nakaj ma Hikoki kik-Description Three-scater twin-engine fow-wing nonoplane designed in first estance as land based excert-I gitter but redesigned as lonor reconstansance aircraft and used also in modified form as two-scater is ght fighter Aller Libert Two 1,130-h p. Nakapma Sakae 21. arr-cooled radials. "pan 16 98 m (55 ft 9 in) Length JINI C. 12 18 m (40 ft). JINI-5: 12 77 m (41 ft 11 m) Height 4.542 m (15 fu)

Causing speed

Kange

(20,000 ft) 318 (-5): 274 knots at 51

JIN1-5; 274 knots at 5,940 m (19,000 ft)

JENT C: 150 knots at 4,000 m (13,000 fr)

JINI-5: 180 knots at 4,000 m

(13,000 ft)

Sormal, 1,457 nautical miles, maximum (JINI-S only), 2,040

nautical miles

Service certific

Homb had

Armament

J1N1-C: 10,300 m (33,800 ft) J1N1-S: 9,320 m (30,600 ft)

None

Type 2 to Midel Lymn Ciliderson furrer

Model II: Two upward-firing and two downward-firing 20-mm. Type 99 cannon

Model 11A: Two upward-firing 20-mm. Type 99 cannon and sometimes one similar cannon bring forwards

In 1941 Nakajima submitted for trial by the navalauthorities two prototypes of a twin-engine low with monoplane intended to meet the demand that then existed for a long-range escort fighter. They proved unsatisfactory in almost every respect except that they were very fast. With the approval of the authorities, Nakajima then redesigned the aircraft. as a long-range reconnaissance machine. The new version, designated the JIN1 C by its makers but widely known in naval circles as the HNI R, was accepted for production in the same rad 1947. the second of th r. 'saft, 's present c 11, 10 mer 12, 119 d 1 9'11, 1 mer at all to be a first of the first to the state. we tage to a stage of Praval North Administration of the Control office the the state of the atmament. About 470 JINIs were built between 1942. and the end of 1944, when production ceased

### Nakajima Orange Blowom

Naval Special Attacker Orange Official des. Discourant

No seed code name.

Manufacturer. Two prototype aircraft built b

Naka, the Hatost KK Single-seater monoplane jet fighter Description hased on the Messerschmitt.

Me 2/2

Faglees. Two No 20 axial-flow turbojeti-

Spati 10 m (J2 ft 10 inf. # 125 m (26 f) # inj. Length Efright 2 95 m (9 ft 8 m) Wing area 13.2 sq m (142 sq ft):

The bakasma Askla, or Orange Bossom, was designed by Kazuo Ohno and Kenichi Mattumigra. 9 the light of descriptions of the Messerschmitt. Me 262. The Ne. 20 jet engines were based ..... the BMW 003 attal-flow turbojet. Two prototypes mere built. The first made its maiden flight on 7 August 1945. A second flight was attempted a few. days later, but the take-oil was unsuccessful. The other prototype did not fly. The aircraft way expected to attain a speed of 413 miles an hour at-13 (40) feet. Its estimated range in still arr was 509. file to all on feet

Nakajima Ki-27		
Official des.	Army Type 97 Fighter Model A. Model R.	
Affred code nom		
Manufacturers	Sakarma H kote K K	
Description	Maniyu Hikoki Seizo K.K. Single-seater fighter of low-wing monopeane configuration with	
Englar	Army Type 97 (Nakanma Ha 16) air-cooled radial nominally of	
Spon f.ength Height Weight empty Weight lended Crew Maximum speed	650-b.p. but defineming 780-b.p. at 2,900 m (9,500 ft)  11 3t m (37 ft 1 m)  7 53 m (24 ft 8 m)  3 25 m (10 ft 8 m)  18 6 sq m (200 sq ft)  1,110 kg (2,447 lb)  1,750 kg (3 946 lb)  One  470 km h at 3,500 m (292 m.p.h.	

41 [1,50 fg]

350 km b at 3,500 m (217 mph) Cruising speed - 11.500 (c) Normal, 627 km (190 males). Range

unturn with drop-tanks. before enling.

S. S. Commercial

Bomb-load

The Ki-27 first flew in prototype form in 1936, Inthe following year it went into production as the As 27s or Army Type 97 Fighter Model A. The Kr 27t 37 carry I

drop-tanks. During the first two years of war with the Western Powers No. 27s were used in the Philippines.

tast Indies d in service in of the war lest performance and feeble. Justined In human-bused

of the war. temoved were les phatien.

I falket, and some of these

### Nakajima Kr. 3 e

THE PRES - 17 Transport Aircraft 41 2 Transport

Allied code name Thomas Manufacturers Nakaioma H koki KK ---- Range History KK Description Twin-engine transport aircraft. designed for cristian use and adopted by the armed forces. Engines Two 780-h p. Nakasma Kotobulu 41 or Ha. Ib acr-cooled radials Span 19 916 m (65 ft)

Length 15.3 m (50 ft 2 m) Height 4 15 m (13 ft 7 m) Wing area 49 2 sq m (530 sq ft).

Between 1937 and 1940 Nakajima built 41 AT-2 transport arreraft for Dat Nippon Koku KK and the Manchunan Airline Company. These remained in



f trm

Range

Bomb load

g the Sound World War. Nakajima unalar aircraft for the military 1 a further 299 were built by 118 aircraft, some were used by scations aircraft and to carry en over by the navy. They version in using el or Ha lb instead of s Li Z I engines. A three-man crew and

## Nakajima ki-43 Peregrine Falcon:

Official des. Army Type I Fighter Peregrine Falcon Model IA, IB, IC, 2A FI 3A Affred cude name. Oscar (also called Jim). Munufacturers

Nahanma Hikoki KK ina Hikoki KK bikawa Dai-Ichi Rikugun r kusho

bit gle-seater fighter and fighterbomber of low-wing monoplane. ont guration with retractable undercarriage

Ki-43-1: 950-h p. Army Type 99 Laging (Nakajima Ha 25) air-cooled radul

Ki-43-11, 1,150-b p. Army Type I (Nakapma Ha 115) air-cooled. 125 11

Kr-43-IIIa: 1,150-h p. Army. Type I (Ivakajima Ha-115-11) air-cooled radial delivering

1,230 h.p. at 2,800 m Span Earlier models: 11 437 m (37 ft 6 in) Later models: 10 84 m (35 ft 7 m) Length Earlier models: 8 832 m (29 ft) Later models: 8-92 m (29 ft 3 in)

Height 3.27 m (10 ft 9 m)

Description

Wing area. Earlier models: 22 sq m (237 sq ft): Later models: 21:4 sq m (230 sq ft) Weight empty Larher models: 1,580 kg (3,483 lb) Later models: 1,910-1,920 kg

44 42 W 16 Welshit headed 1 or icr mostels 2,048 kg (4,515 lb) fatter mode < 2.560-2,590 kg

(5,644-5,710 (b) One

Maximum speed - Ki-43-1; 495 km/h at 4,000 m. (308 m p h, at 13,000 ft)

Ki-43-II: 530 km/h at 4,000 m (329 m p.h. at 13,000 ft) Ki-43-111a: 576 km/h at 6,680 m

#3566 p.L. 3122 000 for Ke 43 1 330 or mar 23 or m Critises, speed (12 mg) a 8 200 (r)

& 33 H 4401 (1 C ) ripl ). Ke D III 417 man (225 map h)

Kr 43-1: L200 km (745 miles) k 11 (1; 1,760 km (normal) to 3,200 km (maximum) (1,095 to

1,990 miles) KI-43-IIIa: 2,120 km (normal) to 3,200 km (maximum) (1,320 to

1.990 miles)

Service ceiling Ki-43-1: 11,750 m (38,500 ft) K ← 3 ≤ 11 - 11 = 200 m (3 5 7 50 fr)

3-1-43-11fa: 11,400 m (37,400 ft) Ki-43-I: Two 15-kg bombs

Later models: Two 30-kg bombs (normal) or two 250-kg bombs (maximum)

Ki-43-1; Two 7-7-mm Type 89 Armament machine-guns or one 7:7-mm.

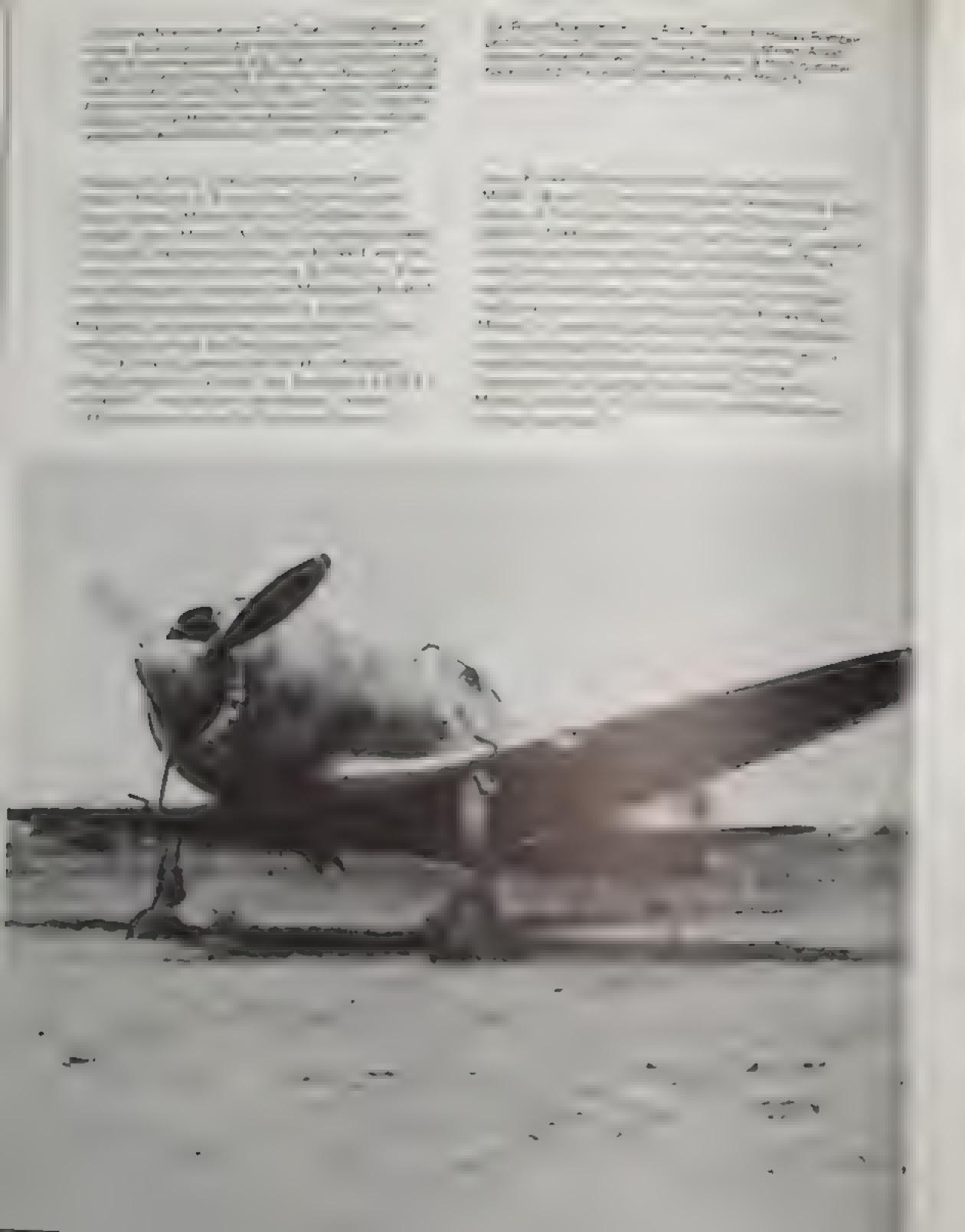
Type 89 and one 12-7-mm. Type 1 machine-gun (Ki-43-1b) Ni-43-le and all later production models: Two 12 7-mm. Type 1.

machine-guns

123

		He hi empts	
	ractable undercarrage and brisk per-	Cres Maximum spice	
		Star real	
In vere con Ki-43- Has by Tachisawa I.	All it and nearly 7 to b t t mpleted by Nakajema, about fifty the First Army Air Amenal Dar-Ichi R kugun Koli and Illas by Tach in the Amenal Illas by Tach in the Illas b	Armanen	` I ^
			Total Control of the
Nakajima i Official des,  Allied code nos Vianufactures Description Lague	Army Type 2 Sing San		
pmn reggi	At 44-111; 2,000-h p. Nakayima Ha-145 air-cooled radial 9-45 m (31 ft) Farture mandal 7-77	The No	







Naka, ak	149 Storm Dragon
()	OU Heavy Bomber
A+ .	
11	Hikoki KK
D	Hikoki KK
1 -	1.250 hp Arms
	- Nakai ma Hu 41)
	air-cooled radials
	K1-49-12: Two 1,450-h p. Army
	Na ima Ha 109
1	67 (4)
1	16 808 m (55 ft 2 m)
	F FB: 16.5 m (54.8:2 m)
He	
11	The second second
11	* (13 382 lb)
	Ki 49 II 6 530 kg (14 196 lb)
Weight Insided	Kir 49, 15, 10, 150 kg (22, 377 th)
	Kr. 49, H: 10 640 kg (23 545 lb)
I ren	
Maximum pecil	Kt 49 1: Not known
	Ki 49 H, 492 km h at 5 000 m
	906 m p h at 16 4/0 ft)
Craising speed	Ni-42 L. Not known
	1 350 km h at 3 000 m
	g 10 000 fp
Rarie	* * I sound wh
	- Normal 2 Groke
	1; maximum 2 950 km
Service ceiling	1 10 1 1
STANCE CELIENT	Ka-19 I Set known
Bomb-Inad	K)-49 II 9,300 m (30 500 ft)
ANALYSIA PROPERTY.	750 kg. maximum, 1,000 kg

Armament

Models I and 2A: One 20-mm Ho-1 cannon in dorsal turret, five: 7-7-mm. Type 89 machine-guny in forward, ventral, tail, and portand storboard beam positions Model 2B: One 20-mm Ho-1 cannon in dorsal turret, three 12.7-mm. Type I machine-guns in forward ventral and tail. positions, two 7:7-mm. Type 89 machine-guns in port and starboard beam positions.

The bakajima Ki-49 Doneyu, or Storm Dragon, was intended as a successor to the Mitsubishi Ki-21. heavy bomber, but never entirely replaced that aircraft. The prototype made its maiden flight in August 1939 and the first production aircraft were delivered two years later. Priots complained that, although faster than the Ki 21, the Ki 49 I was more difficult to fly, and in any case was not fast enough to escape interception. The Ki-49-II, powered by two Nakajima Ha-109 engines, replaced the Ki-49-1. ifter only 129 production aircraft of the Model 1. veries had been built. Hetween the autumn of 1942 and the end of 1944 some 600 Kr 49 Hs were completed by Nakajima, about fifty by Tachikawa. Hikoki, Units equipped with them suffered heavy losses during the Allied advance to the Philippines, and after the American landings in the Gulf of Leyte most surviving aircraft of the series were relegated to suicide attacks or employed as troop transports or submarine-spotters. A few were modified avmight fighters. Six Ki-49s powered by 2,420-h p. Nakajima Ha 117 engines were built in 1943 and given the designation Ki 49. III, but this variant 50 kg, maximum, 1,000 kg inever emerged from the experimental stage.

# Nakajima Ki-84 Gale

Army Type 4 Fighter Gale Mode Official des.

Allied code name Frant

Nakajima Hikoki KK Manufacturers Mansyu Hikoki Seizo KK

Single-seater fighter and fighter Description homber of low-wing monoplane

contigutation

1,900-h p. Army Type 4 Engine

(Nakajima Ha 45) air-cooled rad-

[1 238 m (36 ft 10 m) Span-9-92 m (32 ft 7 inf Length. 3 385 m (11 ft 1 in) Height 21 sq m (226 sq ft) Wing area 2,660 kg (5,864 lb) Weight empty 3,613 kg (7,955 lb. Weight loaded

Crew-One

631 km h at 6 120 m (372 m i Maximum speed

Cruising speed Range

at 20 000 ftt. 445 km h (277 m.p.h.)

Normal, 1 695 km (1 050 mc maximum, 2 168 km (1 345 miles,

10,500 m (34,500 ft) Service ceiling

Homb-load

Armament.

Two 250-kg bombs could be carried in place of drop-tank

Model 1A: Two fuselage-mounted 12.7-min. Type I machine-guns and two wing-mounted 20-mm. Ho 5

CO TE TE

Model 1B: Two fuselage-mounted and two wing-mounted 20-mm.

Ho 5 cannon

Model IC: Two fuselage-mounted 20-mm. Ho-5 and two wing mounted 30-mm, Ho-105 cannon.

The Nakajima Ki-84 Havate, or Gale, was designed to meet a specification which called for a 398-mile-anhour armoured long-range fighter with self-scaling. fuel tanks. When tested in 1943 the prototype fellthort by ten miles an hour of the stipulated figure. but climbed to 16,400 feet in less than six and a half minutes and reached a ceiling of well over 40,000. feet. Large-scale production began in the spring of 1944 and continued until the end of the war. During that time more than three and a quarter thousand. Ki-84s were built by Nakajima and just under a hundred by Mansyu Hikoki Seizo. The Model 1A was credited with a maximum speed of 392 miles an hour at 20,000 feet, but a captured and restored

e United States in 1946 reached I the P 4 > 1

excess of K1 54 configuration, designated the K1-113, -as built of steel, but it was not tried in the air. The Ki 48 III, to be powered by a Nakarera Ha 41 Das measure or eath a late

- 1 Mitsubishi-powered version of K1 55 I which received the

I of the war

# Rikugan Ki-93

Army Experimental Fighter and Otheral des.

round-Attack Aircraft kt 93

Vibrd code name Manufacturer.

Two prototype aircraft built by Dar-Joh Rikagun Kokasho

Two-scater (win-engine heavy fighter) Description

I ground-attack a reraft of I-wing monoplane configuration

Two 2,400-h p. Mitsubeshi Ha 214 Lagines ir-corned rad alc.

Span 19 m (62 ft 4 in) Length 14 215 m (44 ft 8 m) 11 1 85 m (15 ft 11 m) 13. 54.8 sq m (519 sq ft)

The Ki 93 is designed by the Army Aerotechnical Research Institute (Rikugi Kokumjutsu Kenksuo) to carry one 57-mi limetre and two 20-mile metre. annon in heavy tighter and one 75-m t metre carron. in ground-attack form, in each case with the adding of one 12.7-millimetre machine-gun. Two prototi-per were built by the First Army Air Arsenal (Dai-John Rikugun Kokusho) at Tachikawa, and the first was tested in April 1945. The second had yet to fit wheat Japan surrendered



TO Navagina Ki-84 Army Type 4 Fighter Havate (Gale Fact will prove mid and product in armost the Hayate

ranks as the best arcraft of its class produced in substantial



# Tachikawa Aircraft

### Inchikawa ki-9

Official des. Army Type 95 1 Medium Grad

Missl rode name ......

Manufacturers

Description Two-scater intermediate trainer

Engme

In 1931 the military authorities tested a primary framer built as a private venture by Tachikawa. His oki kik. They rejected it as too small for their needs, but invited Tachikawa in the following year to design an aircraft which could be used, with different engines, both as a primary and as an alternediate trainer. The firm submitted two prototypes powered by Hitachi Ha. 13 engines and the puncted by a Nakapena NZ engine rated at 190 h.p. After testing them the authorities gave up the idea of using the same airframe for two aircraft.

77 (Abbies Tarzenawa Ki-17 Army Type 95-3 Primary Trainer Designed in \$935 and put into production in the same year the Ki-17 continued to be manufactured until 1944. It was known to the AAAs as CEDAR

# Follyo Kukir in 1964 and 1965. Two models were

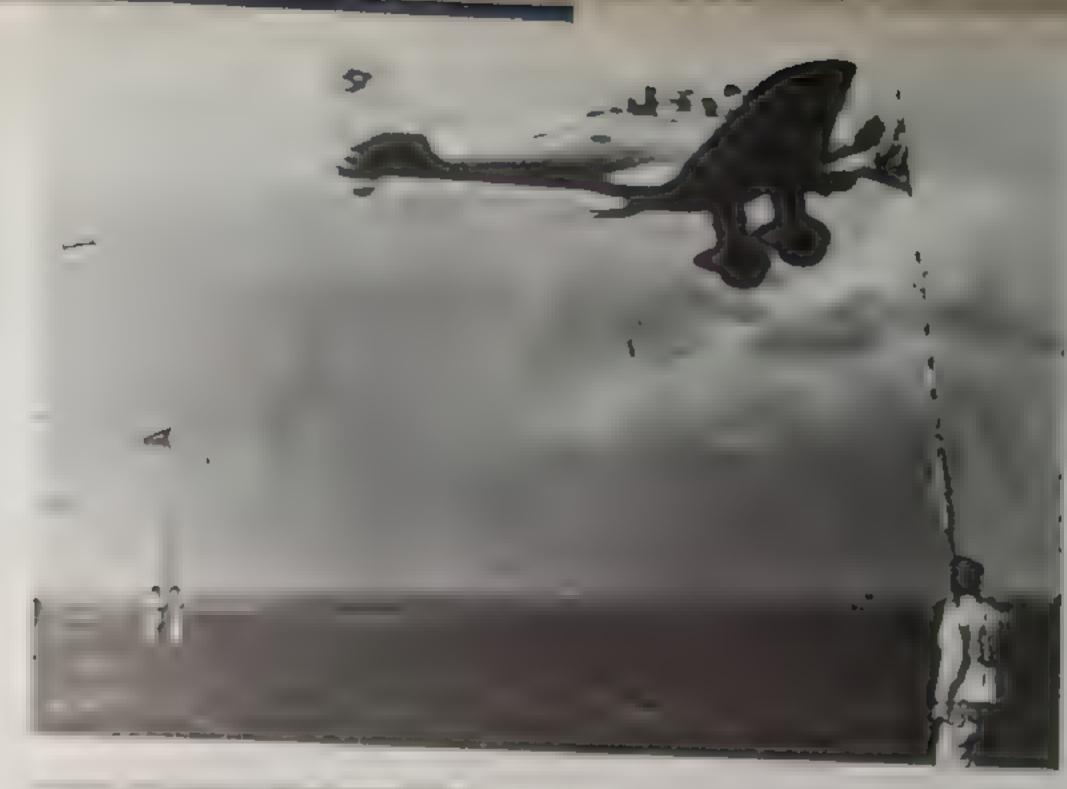
I had a stronger undercarriage than the first. The II had a top speed of roughly 150 miles an hour for these and

### Tachikawa ki-17

Official des.
Army Type 95 3 Primary Tenmer
Manufacturer
Description
The primary Tenmer
Tope 95 3 Primary Tenmer

- mgane

71 (Top) Tachikawa Ki-9 Army Type 95-1 Modium Grade Trainer Designed by Rypirichi Endo of Tachikawa after an artirati offered by the firm as a primary trainer had been simed down as too small the Ki-9 - code-named SPRUCE by the Alies - proved so successful that more than 2.500 aircraft of the production series were built. The photograph Mows the Model B (Ki-9 KA)



Thoth a primary

or was that Tachikawa

principle order for the Type

rade Trainer but also an invitation

ner distinct from it. The

Ks. 17, a hiptane with upper and

pan and a laden weight of

it 560 Ks. 17s, including two

till by Tachikawa between 1915

Fachikawa Ki-36 and Ki-55

Typicial des Stmy Type 98 Direct Co-operation

Army Type 99 Advanced Trainer

Manufacturers Tach

Description

F.Ingree

Fachicawa Hikoki Kik

Kawasaki Kiikuki Kiigvii Kik

Iwo-seater Inwowing monoplane

lesigned as army co-operation

itricall but also used, under

d fferent designation and with

itainer modifications, as advanced

450-h p. Army Type 98 (Hitachi Ha 13a) air-cioiled radial

11.8 m (3) ft 9 m)

Arcraft Introduced to active service during the undeclared war between Japan and Crina, the Ki-36 was found so useful that it did not go out of production until the early part

Length Height Wing area

# m (26 ft 3 m) 3 64 m (11 ft 11 m) 20 sq m (215 sq ft)

The Ki lin was hold to a specification which called for an appearation aircraft of monoplane country mon, capable of operating from rough airstrips and of carrying both photographic equipment and small bombs. Designed by Ryokichi Indo of Tachikawa, it had a fixed spatted under-

they are the same speed in the region of 215 to they are hour and a service ceiling of approximately 27,000 feet. About 800 aircraft of the production series were built by Tachikawa between 1938 and 1944, a further 425 or so by Kawasaki between 1940 and 1942. Kt. 36s were used throughout the undeclared war with China for tactical and artiflery reconnainsance and close support of troops. They were also used in 1941 and 1942 in South-Last Asia and the Pacific theatre, but proved highly vulnerable to Albed fighters.

The Ki 55 was substantially the same aircraft modified by the omission of wheel-spate and of internal equipment not needed in an advanced trainer. Tachikawa built about 1,000 of these aircraft between 1939 and 1943, Kawasaki some 300 lioth Ki-36s and Ki-55s were used towards the end of the war as suicide bombers, carrying a single 250- or 500-kilogram bomb. An advanced version of the Ki-36 with a 600-h p. engine and a retractable undercarriage was planned but not built

of 1944. A training version, the Kr-55 was almost identical in appearance except that it had no wheel-spate. The Alles called both versions IDA.

To The Company of San Army Time & Armening Transport Unit a Transfer of the formation and by . courts of the first the first property of the F TO THE STATE OF THE SERVICE TO SERVICE TO Transcript or a formation Tra Lat but and the company of a contract to the state of the contract to

### Tachikawa Ki-54

Ki-54a: Army Type I Advanced Official des. Trainer Model A Ki-54b: Army Type I Operations Trainer Model B Ki-Sto: Army Type I Transport

Aircraft Model C

Ki-54d Army Type I Patrol Romber Model D

Allied code name. Hickory

Tachikawa Hikoki KK Magufacturer Twin-engine low-wing monoplane Description

intended for operational training of bomber crews and used in

various foles

Two 450-h p. Army Type 98 Lagmes

(Hitachi Ha-13a) air-cooled radiale Length 17:9 m (58 ft 9 in) Height 11 94 m (39 ft 2 in)

Span. Length 3-58 m (11 ft 9 in) Height 40 sq m (431 sq ft) Wang area

The Fachillawa K1 54 was designed in response to a request for a twin-engine aircraft suitable for the simultaneous fraining of the entire crew of the kind. of bomber used by the Japanese Army Air Force in 1939. As things turned out, the prototype way better suited to the training of pilots alone, and the Model A was used chiefly for that purpose. The Nr. 54b, or Model B, came closer to the original conception and was manufactured in larger numbers. than any other version. Model C was a transport. aircraft with a crew of two and accommodation for eight passengers. Model D, built only in small numbers, was used for anti-submanne patrols: About 1,400 Ki-54s of all versions were manufactured between 1940 and the end of the war-



### Tachikawa Ki-55

See Tachikawa Ki-36 and Ki-55

### Tachikawa Ki-70

Army Experimental High-Speed Official des. Command Reconnaissance Aircraft

K1-70 Ailled code name Clara

Description

Three prototype aircraft built by Manufacturer

Tachikawa Hikoki KK Twin-engine mid-wing a server to

intended as successor to Ki-46 Two 1,900-h p. Mitsubishi f.ogines

Ha-104M or 2,200-h.p. Mitsubship Ha-211-I Ru air-cooled radials

17 8 m (58 f) 5 m) Span 14.5 m (47 f) 7 in) 3 46 m (11 ft 4 m) Wing area 43 sq m (463 sq fr)

tige reconnaissance afferalt. It was expected to attain a speed of more than 400 miles an hour in level flight. Two prototypes powered by Mitsubishi Ha-104M engines. were tested in 1943. They proved difficult to handle and were considerably slower than the Ki-46-II. A. third prototype with turbosupercharged engines was tried, but the aircraft was still unsatisfactory and the project was abandoned

### Fachikawa Ki-74

Official des. Army Experimental High-Altitude Long-Range Bomber Ki-74 Allied code name Patsy (formerly Par) Mar ufacturer Tachikawa Hikoki KK

Description Twin-engine long-range bomberreconnaissance aircraft of mid-wing

monoplane configuration Engines Two 2,000-h p. Mitsubishi Ha-104

Ru air-cooled radials Spaa 27 m (88 ft 7 in) Length 17 65 m (57 ft 11 in) Height 5·1 m (16 ft 9 m) Wing area 80 sq m (861 sq ft) 10,200 kg (22,487 lb) Weight empty Weight loaded 19,400 kg (42,770 lb)

Crew Five

Maximum speed 570 km h at 8,500 m (354 m p.h.

at 28,000 ft)

Cruising speed 400 km/h at 8,000 m (250 m p h. at 26,000 (t)

Range 8,000 km (5,000 miles) Service ceiling 12,000 m (39,400 ft)

Bomb-load 1,000 kg

Armatenent One remotely-controlled 12-7-mm, Type I machine-gun in tail position

In 1939 the military authorities issued a specification calling for an aircraft with a range of 5,000 kilometres and a cruising speed of not less than 450. kilometres an hour, capable of reconnecting west of Lake Baikal from bases in Manchukuo. A tentative Jeugn was prepared under the supervision of Dr H Kimura of the Aeronautical Research Institute of the University of Tokyo, but the project was afterwards shelved because no suitable pressure-cabin. was yet available. In 1941 the authorities revived it.

putating that the aircraft should be capable of nombing as well as reconnaissance and of reaching he continental United States. A prototype powered " Tuch p. Mitsubishi Ha-211-I air-cooled completed in March 1944, It was followed by two more totypes with similar airframes but b) turbosupercharged Ha-211-1 Ru radials Both versions of the Ha-211 proved troublesome. Thurteen pre-production aircraft powered by Ha-104 Ru turbosupercharged radials were then built, and received the designation Ki-74-I. They were still being tested when the war ended. A version spable of carrying a 2,000-kilogram bomb-load, tohe called the Ka-74 II, was projected but not built In addition a transport version of the K1-74 was planned. The Allies received news of the project. and at first believed that the aircraft was to be a long-range fighter. They changed their code name from Pat to Patsy when they learned that it was to carry hombs

### Iachikana Ki-77

Official des, Army Experimental Long-Range Research Aircraft Kr 77

Allied code name. Name.

Manufacturer Two aircraft built by Tachikawa

Hikoki KK

Description Two-engine intercontinental communications aircraft of low-

wing monoplane configuration Lagmes Two 1,170-h p. Nakajima Ha-115

air-cooled radials

Span. 29 438 m (96 ft 7 in) Length 15-3 m (50 ft 2 in) Height 3-85 m (12 ft 8 in) Wing area 79 6 sq m (856 sq ft) Weight empty 7,237 kg (15,955 lb) Weight loaded 16,725 kg (36,872 lb) Crew

Fave:

Maximum speed 440 km/h at 4,600 m (273 m.p.h.)

at 15,000 ft) Cruising speed

300 km/h (186 m p.h.) Calculated range 18,000 km (11,185 miles) Longest non-stop

Hight. 16,435 km (10,212 miles) Service ceiling 8,700 m (28,500 ft) Bomb-land

None: Armament None

The genesis of the Ki-77 was a proposal made towards the end of 1939 by the prophetors of the newspaper Asaht Shimbun that the Aeronautical Institute of the University of Tokyo should design an aircraft capable of flying non-stop from Tokyo to New York. With the approval of the military authorities, a design was prepared under the supervision of Ryokichi Endo of Tachikawa and Dr. Kimura of the Aeronautical Research Institute. Tachikawa hoped to have an aircraft ready by November 1941, but the date tentatively chosen for the first flight had to be postponed until the following February. Meanwhile the outbreak of warwith the United States compelled the authorities to: shelve the project. In the summer of 1942 they revived it in a form which envisaged non-stop. thights to Rome and Berlin. The first Ki-77 was completed in September and made its maiden. flight in November, In April 1943, it flew non-stopfrom the neighbourhood of Tokyo to Singapore, covering 3,312 miles in 19 hours 13 minutes. A second aircraft, first flown in May, was lost over the Indian Ocean in July while attempting a non-stop Bight from Singapore to Berlin, Whether it was shot down by Allied fighters or met with an accidentis not known. In the summer of the following year, the surviving aircraft set up an unofficial record by flying non-stop for 57 hours 12 minutes over a closed circuit, covering a distance of 10,212 miles. Although it was designed to fly at altitudes of the order of 20,000 to 30,000 feet, the Kf-77 had no pressure cabin. The cabin was sealed to prevent the escape of oxygen but was not pressurized.



# Yokosuka Aircraft

Yokosuka B4Y1

Naval Type 96 Carrier-borne Official detail

Attack-Bomber

Affired code name Jean

Wang area

Dai-Juschi Kaigun Kokusho Manufacturers

Mirubishi Jukomo Kh. Nakapma Hikoki KK Three-seater carrier-horne

Description torpedo-homher of bipiane

configuration

840-b p. Nakajima Hikari 2 air-F.ngler

crysled radial. 15 m (49 ft 3 m) Span. 10 15 m (33 ft 4 m) Length 4 36 m (14 ft 4 in) Height 50 sq m (538 sq ft)

The BIYI was designed by Sanae Kawasaki, of the 1st Naval Air Technical Amenal (Dai-Ichi Kaigun-Koku Gmisusho) at Yokosuka, to meet the situation that arose when the Naval Type ? Carrier borne Attack-Bornber, intended to serve as a stop-gap until monoplane torpedo-hombers designed by Minubulu and Nakajima were ready, was seen. in 1934 to be unsuitable for the purpose. I iveprototypes were built at Yokosuka and some 2(1). production aircraft were manufactured between 1935 and 1938 by Mirrobishi, Nakajima and the 41th Noval Air Arsenal (Dai-Juichi Ka gun-Kokusho). The B4YI had a maximum speed of 150 knots, a service ceiling of 6,000 metres and a range of \$50 nautical gules. The light fleet carrier Hotho, attached to the Combined I leet for training when Japan went to war in 1941, carried eight. B4's is but was about to exchange them for more mildern aircraft.

### Yokosuka D3Y Venus

Official des. Naval Type 99 Homber Trainer

Venus Model 22

Allied code name. None.

Manufacturer Matsushita Koko Kogyo Kk Description Two-seater trainer of low-wing monoplane configuration con-

structed largely of wood.

Lagine 1,300-h p. Mitsubishi Kinsei 54

arr-cooled radial

14 m (45 ft 11 in) Span 11 215 m (36 ft 10 in) Length 4 185 m (13 ft 9 m) Height 32 8 sq m (353 sq ft). Wing area

In 1943 the naval a choraties asked their suppliers. 

at the arsenal, and Matsushita Koko Kopon. completed three production aircraft with the

stuicide attacks will uted but not built. The D3Y1 K had a maxis speed of 243 knots at 6,200 metres, or roughly 20,000 feet, and a cruising speed of 160 knots at 3,000 metres,

- 11 11 41

#### Yokosuka D4Y

Official des.	Naval Type 2 Carrier-borne
	A Spine Agency
	11, F2, T2A
	Naval Carrier-borne Bomber
	Comet Model 11, 21, 12, 12A,
	22, 22 A, 33, 33 A
	Naval Comet E Night Fighter
Allied code name	Judy (also called Dot)
Marylyshop	Aichi Kokuko KK
	Dar-Juichi Kaigun Kokusho
Description	Two-seater low-wing monoplane
	designed as carrier-home dive-
	homber and used also as carner-
	horne reconnaissance aircraft and
	as land-based night fighter



trauid-cooled V12

D4Y 2: 1,400-h p. Aichi Atsuta-

32 liquid-cooled V12 D4Y3: 1,560-h p. Mitsubishi Kinser 62 art-cooled radial

11 5 cm (37 ft 9 m) 1

. 3 . . . . . . . . . . . . . . . 1,1,1

. . . . . The Park State of the last of

D4Y 3: 2,501 kg (5,514 lb)

D45 3,650 kg (8.047 lb) Weight Insided 1, , , , , , 114 /

( rew

Nome:

I wo (124) 4 smeide aircraft, one) Maximum speed 1047.1, 298 knots at 4,750 m.

(15,500 ft)

D4Y2: 313 knots at 5,250 m (17,250 ft)

at a first

(20,000 ft)

Cruising speed D4Y1; 230 knots at 3,000 m.

D4Y2: 230 knots at 2,000 m.

(6,500 ft)

D4Y3: 180 knots at 3,000 m

(10,000 ft)

Normal range D4Y1: 850 nautical miles D4Y2: 790 nautical miles

D4Y3 390 nautical miles

Maximum rapge D4Y1: 2,100 nautical miles D4Y2: 1,945 nautical miles

D4Y3; 1,560 nautical miles 11117 1 1111

Service co min 43 7 10 000 ( 5 ) 011  To how would Didn't have Type 21 amore borne Reconnais same A great intended in the first instance to meet the demand for a disk bomber suitable for ight feet carriers. יינה לוביץ הקב שבהל לי יין בי בי בשחתי ליותה מיינים מכניםה muscless a secret and as a card based manifest igner. The A was age name was . L DY

Bomb-load

Atmament.

310 kg, maxicum, Storke Day's vicide aircraft Nibkg Models with our will a Al rescept. DAYS S Inotals as one sted

" 'mm Type 2' machine-guns and one flexibly-mounted 7-92-mm. Type I machine-gun firing to the

Dise bon ber models Normal,

Modes with suths A. Rearwardtring 7 52 mir. machine gun. replaced by 11 am Type 2 Divis 1 wo feed the mounted " mm 15,8 9 m chire gims a divise 20 min. Days 50 Model. "commerce at an arge to the

a good light

The Yokosuka D4Y was inspired by a now-forgotten. Gern in a west the He He Ad He 118 between ta.

a real traces I live being date. Activities a distribute a defe printer or bridge contribution DAA2 I was DAYS to be and the same service were and I were if a reperchalton Yokasaka built prototypes modified as carrier-borne reconnaissance aircraft with the designation D4YI-C. I a server of the rate beam of Server like I remarkable of Minney of and a factorist when the Soryw was sunk. Aichi manufactured D4YI-Cs. from the late summer of 1942, at first only in small

numbers. Production of the D4Y1 Suitel, or Comet. way not authorized until the following March About 140 D4YBs and some thirty to forty D4Y1-Cs. to a pirt not Batt ditte Pripping Scale Desummer of 1944 and all, or nearly all, were lost.

professional transfer of the professional was repeated in the D4Y2, introduced some months later. The D4Y3, however, was powered by a radial control of the secretarion

The great weakness of the D4Y1 was a lack of

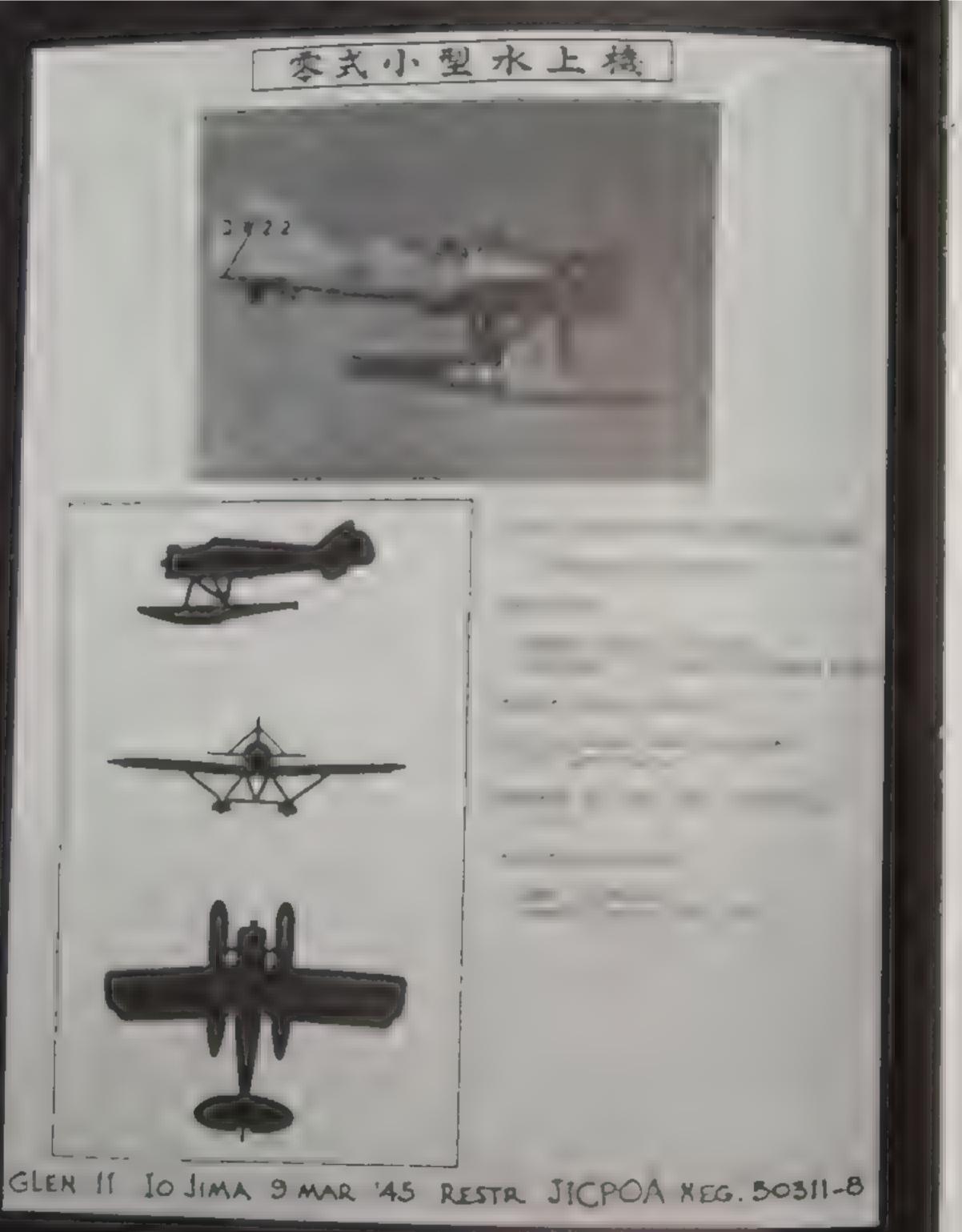
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### Yekosuka 114Y1

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Yokosuka K4Y1

T 337 4 10 Training Scaplane All red cod 11,0 he Teki Hikoki KK I biplane trainer with Denette Hitachi Kam kaze 2 1 , I fadial £15 ft 9 m) 15.11 1 4 4, 12 . 29 ft 8 m. n 1930, the 7 \$ 21 mm (\*\*) r 14 f T t 17

speed was 88 knots at sea level, its range 170 nautical miles. Watanabe completed about 150 aircraft of the production series between 1932 and 1939, Nippon Hikoki some fifty in 1939 and 1940.

## Vokosuka KSVI and KSVA

TOKUSUKA KE	Y Land K5Y2
Official des.	Naval Type 93 Intermediate
	Trainer
Allied code name	Willow
Manufacturers	Dar-Ichi Kaigun Kokutho
	Fun Hikoki KK
	Hitachi Kokuki KK
	Nawamshi Kokuki KK
	Mitsubishi Jukogyo KK
	Nakajima Hikoki KK
	Nippon Hikoki KK
Photoslaston	KK Watanabe Tekkosho
Description	Two-scater biplane trainer with
	fixed undercarriage or twin floats
Engine	340-h p. Hitachi Amakaze 11
	air-cooled radial
5pan	11 m (36 ft 1 (n)
Length	K5Y1: 8-05 m (26 ft 5 m)
	K5Y2: 8 78 m (28 ft 10 in)
Height	K5Y1: 3.2 m (10 ft 6 in)
	K5Y2: 3 68 m (12 ft L in)
Wing area	27 7 m (298 sq ft)

The immediate forerunner of the K5Y intermediate trainer was a training aircraft, the Naval Type 91, of which two prototypes were built in 1931 at the 1st Naval Air Technical Arsenal (Dai-Ichi-Kaigun Koku Gijitsusho) at Yokosuka. In 1932 the naval authorities asked Kawanishi Kokuki to develop, in association with experts from Yokosuka, an improved version of the Type 91 trainer. A prototype was completed in December 1941, tested in the same month, and almost immediately accepted as the basis of a production model. Bearing the designation K5Y1 in landplane and K5Y2 in scaplane form, the K5Y was manufactured in larger numbers than any other Japanese training aircraft and was incontinuous production from the end of 1933 until the summer of 1945. Altogether close on 5,800 K5Ys were built. Nearly half came from Nippon Hikoki, some 1,400 from Hitachi, Fuji Hikoki built about 870, Watanabe some 550. Kawanishi, Mitsubishi, Nakajima and the 1st Naval Ait Arsenal (Dai-Ichi Kargun Kokusho) produced relatively few.

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# Yokosuka MXY7 Cherry Blossom

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### Yokosuka PIY

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Maximum range

Nomice ceiling









\$1 Yokonuka P1Y1 Neval Bomber Ginga (Miky Way)
Model 11. The P1Y2, used both as a comber and as a
regis-Softer with the designation P1Y2-5, was very similar.
The Allies called all versions FRANCES

Bomb-load

Arminent

One 800-kg torpedo or up to 1,000 kg of bombs.
PIYI & PIYZ (models with no

soffic): One flexibly-mounted
20-mm. Type 99 cannon in the nose
and one firing to the rear
PIYIn & PIYZa: Rearward-firing

PIYIn & PIYZa: Rearward-firing cannon replaced by 13-mm. Type I machine-gun

PIVID & PIVID: One flexiblymounted 20-mm. Type 99 cannon in the none and twin 13-mm. Type 2 muchine-guns in dorsal turrer PIVIc & PIVIC: Cannon in the nose replaced by 13-mm. Type 2 machine-gun

P1V1-5: One rearward-firing 13-mm. Type 2 machine-gun, and four 20-mm. Type 99 cannon firing obliquely

P1Y2-5: One rearward-firing 20-mm. Type 99 cannon and two firing obliquely

The Yokosuka PIY was intended as a fast medium bomber which could be used for high-level bombing and also as a dive-bomber and torpedo-bomber. It was designed at the Yokosuka arsenal, but its development was entrusted to Nakajima, who completed a prototype by the late summer of 1941. Production began almost immediately, but complaints were made that the aircraft was difficult by maintain. The result was that some 450 PIYIs had been delivered by the time the aircraft was formally accepted for service use more than a year later. By that time, too, there was an orgent demand for defensive fighters. Some PTY is were modified as night fighters with the designation PTY1-S, or Naval. Fighter White Light, and Kawanishi undertook the manufacture of a special night fighter version, the PIV2-5 or Naval Fighter Aurora. The bomber version was known as the Girga, or Milky Way. As a highaltitude fighter the PIY proved unsatisfactory, and in consequence a number of PIYZs were transformed into hombers and became the Naval Bomber Milky Way Model 16. Nearly a thousand PIVIs (including those modified as night fighters) were built by Nakajima, about a hundred PTY2s by Kawanishi. Advanced versions of the PIV, to be designated the PIV3, PIV4, PIV5 and PIV6, were projected, but none of these was completed even in prototype form.

# Appendix

82 Kokusai Ki-88 Army Type 4 Primary Trainer, Mentical except in the details of its equipment with the Kyushu K9W1 Navai Type 2 Primary Trainer Mompi (Maple) Model 11, the Ki-85 was a licence-built version of the Bücker Bü 131 turer the Jungman. The Allies applied the code name CYPRESS to both versions

# Foreign Aircraft Built under Licence

During the war of 1941-45 the Japanese naval and military authorities made some use of aircraft of foreign design built by Japanese aircraft manufacturers under licence, either before or after the outhreak of hostilities. The only licence-built aircraft which played any significant part in the war are listed below.

### Douglas DC-2

In 1934 Nakajima acquired Japanese rights in the manufacture and sale of the Douglas DC-2, a passenger aircraft of low-wing monoplane configuration with a span of 84 feet 7 inches and a maximum speed of roughly 200 miles an hour. Between 1935 and 1937 they assembled one aircraft from imported components and built five for Nippon Koku KK. All six aircraft were powered by Wright Cyclone SGR-1820-F2 engines, but the five aircraft built all initio in Japan were afterwards re-equipped with Wright Cyclone SGR-1830-F52s. These five aircraft were used by Nippon Koku and its successor, Dai Nippon Koku, to carry passengers and mail between Japan and

Formosa. The aircraft assembled from imported components was requisitioned after the outbreak of war with the United States by the navy. The Allies believed, wrongly, that licence-built DC-2s were used in a considerable scale by the army. They gave the Japanese version of the aircraft the designation Tess.

### Bücker Bü 131

As the outcome of a series of transactions between Bucker Flugzeugbau GmbH, the Japanese naval authorities and KK Watanabe Tekkosho (afterwards) Kyushu Hikoki KK), arrangements were made in 1942 for the manufacture in Japan of the Bücker Bu 131, a small two-seater biplane trainer with a span of 24 feet and a maximum speed of 112 miles an hour. Japanesebuilt Bu 131s were perwered by the 110-horse-power Hitachi Hatsukaze II air-cooled in-line engine. About 340 aircraft built for the navy by Kyushu and Hitachiwere designated the K9W1 Maple, or Naval Type 2 Primary Trainer Model 11, More than 1,000 almost identical aircraft built by Nippon Kokusai Koku Kogyo KK for the army received the designation Kokusai Ki-86, or Army Type 4 Primary Trainer, The Allies gave the code name Cypress to both versions.



# Douglas DC-3 (L2D)

In 1938 Miruol Bussan Kaisha KK acquired through a subsidiary company, and on the initiative of the naval authorities, a licence to manufacture the Douglas. DC-3, a passenger aircraft with a span of 95 feet and a maximum sport of some 230 miles an hour. As a separate transaction, Mitsui hought the components of two aircraft. These two aircraft, powered by LEXY-borse-power Prutt and Whitney air-cooled radials, were assembled by Showa Hikoki Kogyo KK and received the designation L2D1. They were completed in 1979 and 1940. Between 1941 and 1945 Shows completed 414 L2D2s or L2D3s powered by Minubahi Kimei 43, 51 or 53 radiats, and a further 71 were built between 1940 and 1942 by Nakaima. These were officially designated Naval Type O Transport Aircraft Model 11 (L2D2 and L2D2-1) or Model 22 (L2D), L2D)a, L2D3-I, L2D3-Ia). The LYD2-1, L2D3-1 and L2D3-1a were medicied versions with floors strengthened for the carriage of cargo and large doors to facilitate loading and unloading. The Allies applied the code name Tabby to all versions.

### Lockbeed 14-WG3

Before the outbreak of the war of 1941-45. Tachicawa Hikoki KK buught from the Lockheed Aircraft Corporation not only thirty passenger aircraft of the Lockhed 14-WG3 series, but also a licence to manufacture the aircraft in Japan. In 1939 the military authorities accepted their proposal that a version suitable for service use should be put into production. Between 1940 and 1942 Tachikawa built. sixty-fisur aircraft, powered by 900-horse-power Anny Type 99 air-cooled radials, which received the designation Army Type LO Transport Aircraft. Kawasaki built fifty-five in 1940 and 1941, and then switched to their own derivative of the Lockheed. aircraft, the Kawasaki Ki-50. The type LO, with a span of 49 feet 3 inches and a wing area of 552 square. feet, was a lively performer, with a maximum speed of some 260 miles an hour. In 1943 Tachikawa produced an advanced version, the Tachikawa SS-1, with a pressure cabin and a service ceiling of nearly 33,000 feet, but it was purely an experimental model. and was not put into production.

The Allies applied the code name Toby to the Lockheed aircraft imported before the outbreak of war and used by Dai Nippon on scheduled routes. The Type LO aircraft built between 1940 and 1942. and used by the army they called Theima.

#### Messerschmitt 163B

See Minubishi J8M (Ki-200).

### North American NA-16-4R

About two years before the outbreak of war with the United States, the Japanese naval authorities acquired through an intermediary a licence to manufacture in Japan the North American NA-16-4R. This was a two-seater intermediate or advanced trainer of lowwing monoplane configuration, powered by a 450. horse-power Pratt and Whitney cupine, Watanabe produced in 1941 a modified version powered by a 600-borne-power Nakasawa Kotobuki 2 KAI aircooled radial. With a span of rather more than form feet and a wing area of 340 square feet, it was capable of 150 knots or so and had a service onling of just under 24,000 feet. In the same year, the navalauthorities accepted a for production as the Naval-Type 2 Intermediate Trainer, or Kyushu K10W1. Watanabe built twenty-six aircraft of the production series in 1941 and 1942, Nippon Hikeki KK about 150 in 1943 and 1944. The Allied code name for the KIUWI was Oak.

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